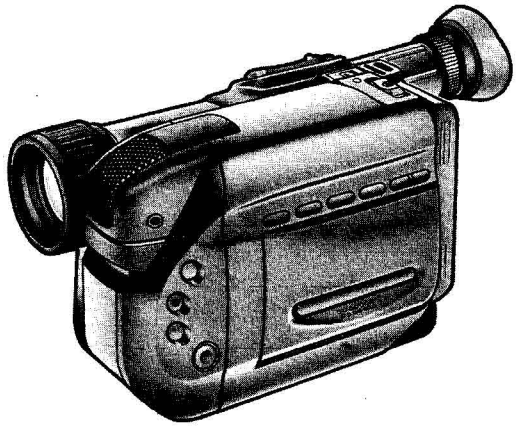
Panasonic

VHS-Compact Movie

NV-S5

Operating Instructions

VHSC PAL



Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT4299

Dear Customer,

May we take this opportunity to thank you for purchasing this Panasonic Movie Camera.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.

Guide to these Operating Instructions

- The numbers shown in the illustration on the left part of the pages correspond to the numbers of the operation steps described on the right part of the pages.
- Operations indicated by arrows:

Sliding, turning or pushing the indicated operation control in the direction of the arrow.

Returning the indicated operation control to the centre "OFF" position.

Sliding the indicated operation control to the left or right.

- In the illustrations other than the explanations for the basic operation, the step of inserting a cassette tape into the cassette compartment is skipped.
- These instructions are based on the use of an EC-30 cassette tape, and its recording time is indicated for the SP mode.
- Reference page are indicated (P.12) (P.24) etc.

Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

VHS-C Movie NV-S5B

- **The rating plate is on the bottom side of the Movie Camera.**

AC Adaptor VW-AS1B

- **The rating plate is on the bottom side of the unit.**
- **This apparatus was produced to BS800.**

CAUTION

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

FOR YOUR SAFETY

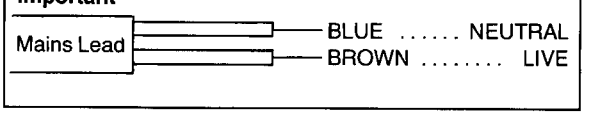
■ **DO NOT REMOVE THE OUTER COVER.**

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

■ **AC MAINS LEAD CONNECTION (VW-AS1B U.K. model only)**

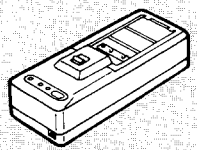
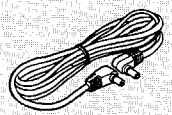
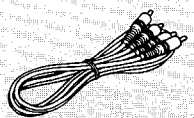
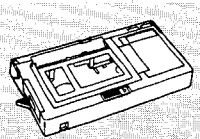
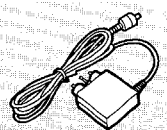
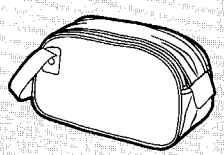
The wires in the mains lead of this apparatus are coloured in accordance with the following code.

Important



As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows: The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

Checklist of the Standard Accessories

AC Adaptor VW-AS1B  For supplying power to the Movie Camera or for charging the Battery Pack (see P.16, 17, 19, 71)	DC Input Cable VJA0669  For connection to the AC Adaptor (see P.19)	Battery Pack VW-VBS1E For supplying power to the Movie Camera (see P.16, 17, 18, 34, 70)	Button Type Battery CR2032 For storing the date and time, title, in memory. (see P.20)	Shoulder Strap VFC0974 (see P.24)	
Audio/Video Cable VFA0039  For connection to a TV set (see P.59, 66)	BNC/PHONO Adaptor Plug VFA0097 For connection to a Video Tape Recorder or TV set (see P.59, 66)	Cassette Adaptor VW-TCA7E  For playback via a Video Tape Recorder (see P.61, 71)	Battery R6 For the Cassette Adaptor (see P.61)	RF Adaptor VW-RF8B  For connection to a TV set (see P.60)	Soft Case VFC1089 

●Optional Accessories are on the Pages 78, 79.

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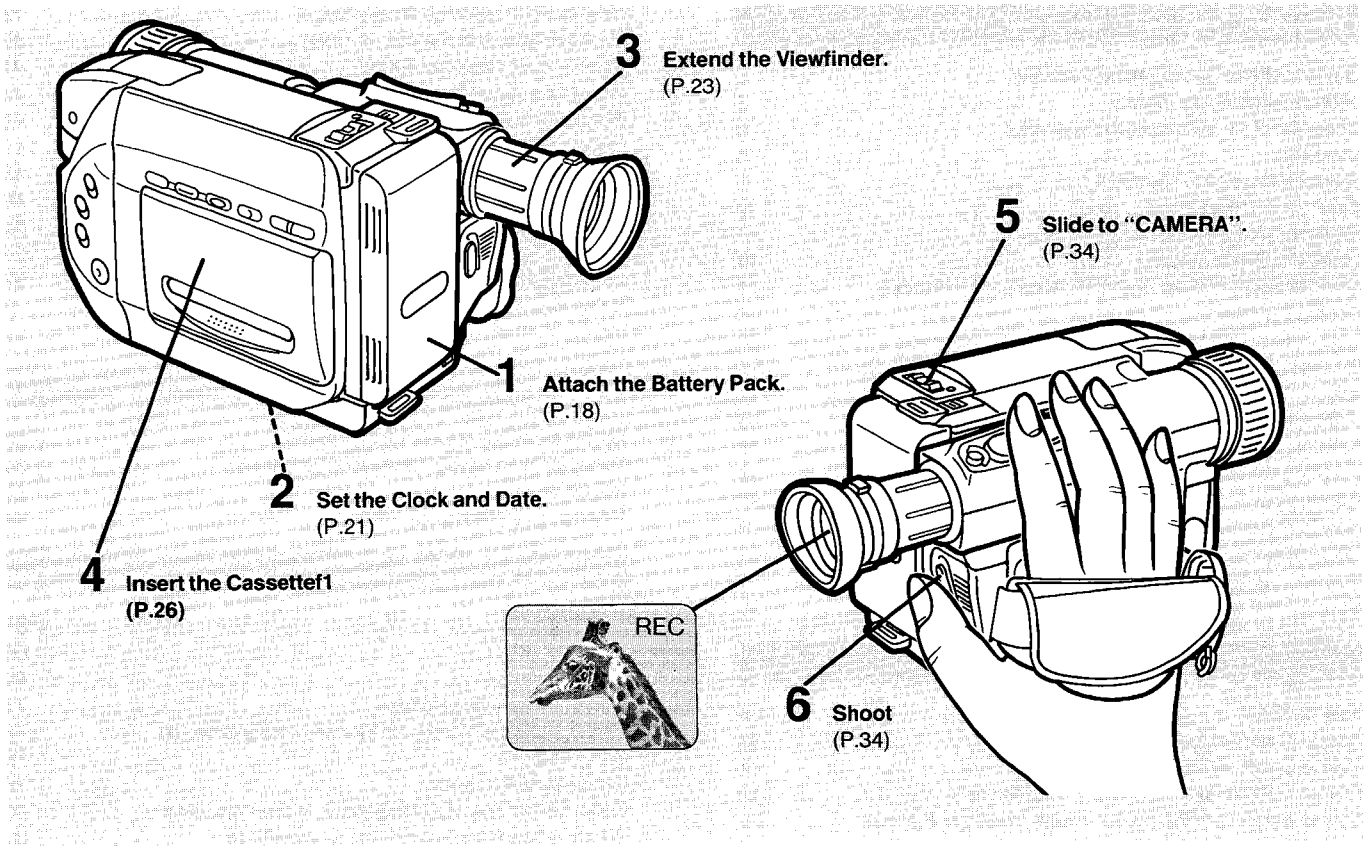
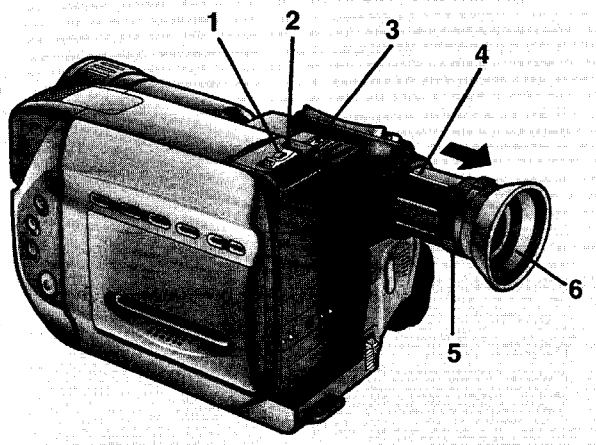

3 Extend the Viewfinder.
(P.23)
5 Slide to "CAMERA".
(P.34)
1 Attach the Battery Pack.
(P.18)
2 Set the Clock and Date.
(P.21)
4 Insert the Cassettef1
(P.26)
REC
6 Shoot
(P.34)



Note:
The illustration shows the Viewfinder in its extended condition.
The Movie Camera is shipped with the Viewfinder in its contracted position.

1 Operation Switch (P.18, 21, 23, 34, 36, 37, 49, 62, 67)
Set this Switch to "CAMERA" for shooting.
Set it to "VTR" for playback.
To turn the Movie Camera off, set it back to the centre "OFF" position.

(VTR: means Video Tape Recorder.)

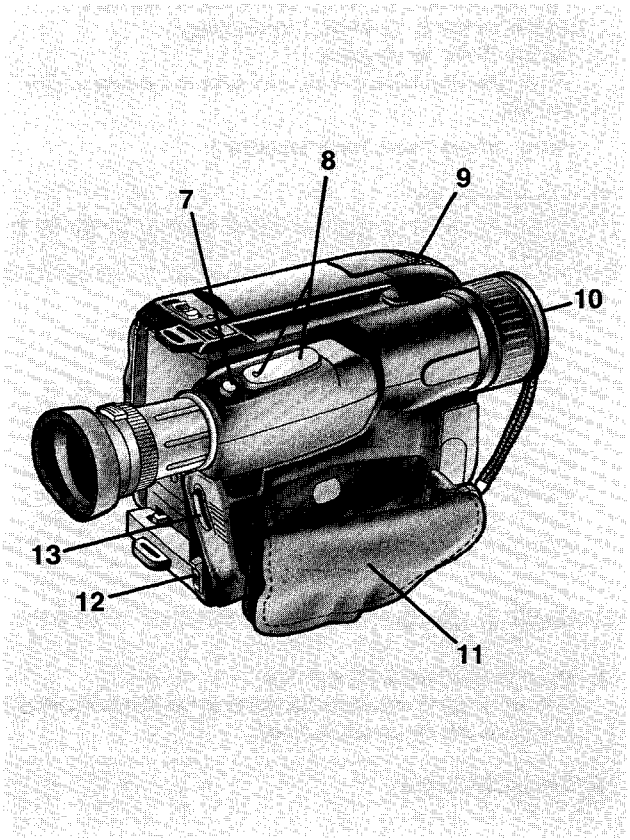
2 Operation Lamp
It lights up when the Operation Switch is set to "CAMERA" or "VTR".

3 Cassette Eject Button (P.26, 34, 36, 62, 67)
Press this button to open the cassette compartment.

4 Viewfinder (P.23, 25, 34, 67)
The subject in front of the camera can be seen on the viewfinder screen. Superimposed on the picture are indications about the operation and condition of the Movie Camera.
To be able to see the picture on the viewfinder screen with maximum magnification during shooting and playback, pull on the plastic ring behind the Eyecup to extend the Viewfinder.
The Viewfinder can be turned upward from its horizontal position by up to 90°.

5 Eyepiece Corrector Ring (P.23)
Turn it clockwise or counterclockwise so that the indications in the Viewfinder are clearly focused.

6 Eyecup (P.23, 68)



7 Snapshot Button (P.40)
Press this button for shooting a still picture for approx. 5 seconds.
To be able to press this button, the Movie Camera must be in the shooting pause mode (Operation Switch is set to "CAMERA").

8 Zoom Button [W] and [T] (P.24, 44, 47, 58)
Press the [W] Button to gradually zoom out to the wide-angle position for panoramic shots; press the [T] Button to gradually zoom in to the telephoto position for close-up shots of distant subjects.

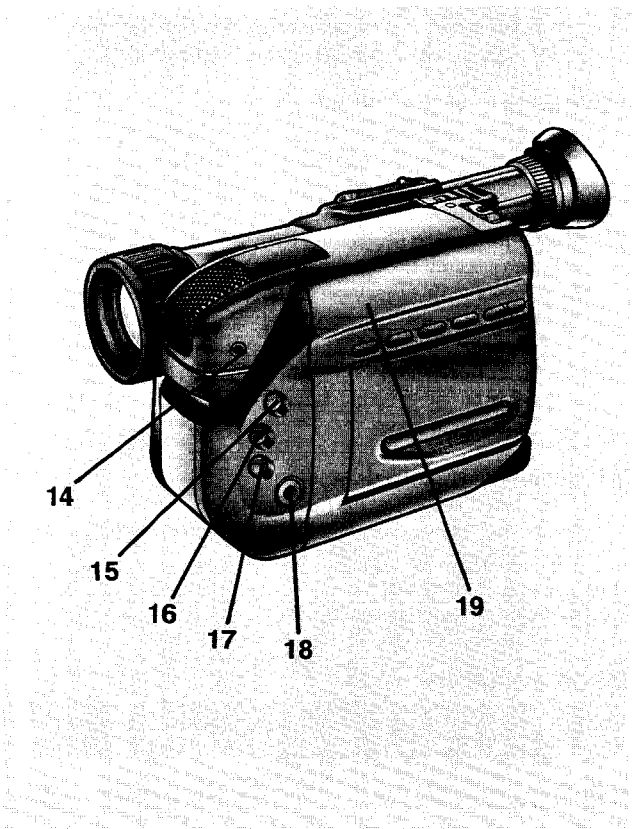
9 Microphone

10 Lens Cap (P.24, 34, 54, 67)
The Lens Cap protects the lens.
Be sure to remove the Lens Cap before starting to shoot.

11 Grip Belt (P.24)
Adjust the length of this belt so that the grip fits comfortably into the palm of your hand.

12 Battery Eject Lever (P.18, 67)
Push this lever upward to remove the Battery Pack.

13 Start/Stop Button (P.24, 34, 35)
Press this button to start shooting a scene. (It is not necessary to keep it pressed during shooting.) Press it again to finish shooting the scene and change the Movie Camera back to the shooting pause mode.



14 External Microphone Socket
If you want to use an external microphone, connect it to this socket (in this case, the built-in microphone will be deactivated).

15 Title Button (P.49, 50, 51)
Press this button to make the memorized title appear in the Viewfinder; press it again to clear it from the Viewfinder. Pressing this button repeatedly will make the title appear→disappear→appear in the Viewfinder.

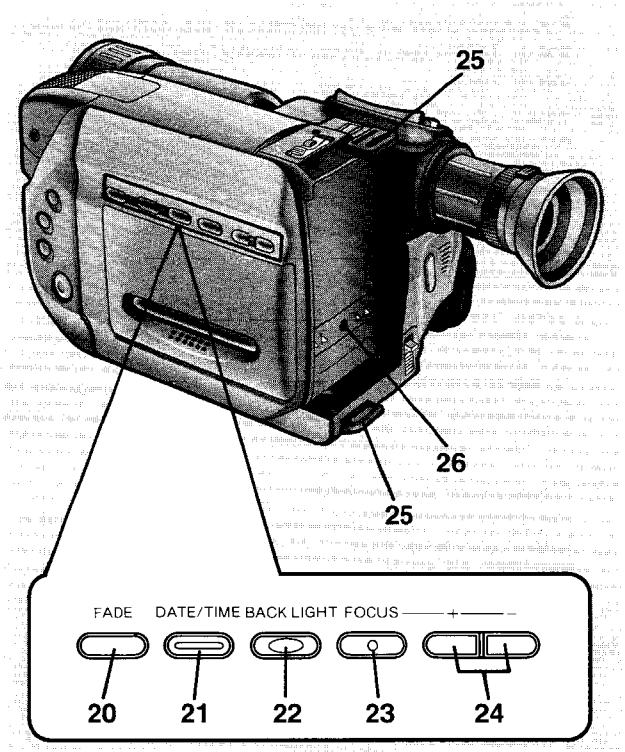
16 Digital Effect Button (P.41, 42, 43)
Use this button for the following 3 operations.
(At every press of this button, the operation mode changes.)

1) For still picture shooting:	Press once.
2) For strobe picture shooting:	Press twice.
3) For mirror picture shooting:	Press three times.
4) Return to the normal shooting:	Press one more time.

17 Digital Zoom Button (P.44)
Press this button to increase the power of the zoom function from the normal 8 times to 12 times (in the maximum telephoto setting), the subject will be enlarged 12 times compared with the maximum wide-angle setting.

18 Image Stabilizer Button (P.31, 38)
Press this button when you are shooting on the move, from a vehicle for example.

19 Cassette Compartment (P.26)
Insert a VHSC or S-VHSC compact video cassette into this compartment.



20 Fade Button (P.45)
Press this button to fade out a scene and to fade in the following scene for a soft scene-to-scene transition.

21 Date/Time Button (P.21, 22)
Press this button to make the time and/or date appear in the Viewfinder and superimpose them onto the picture during shooting.

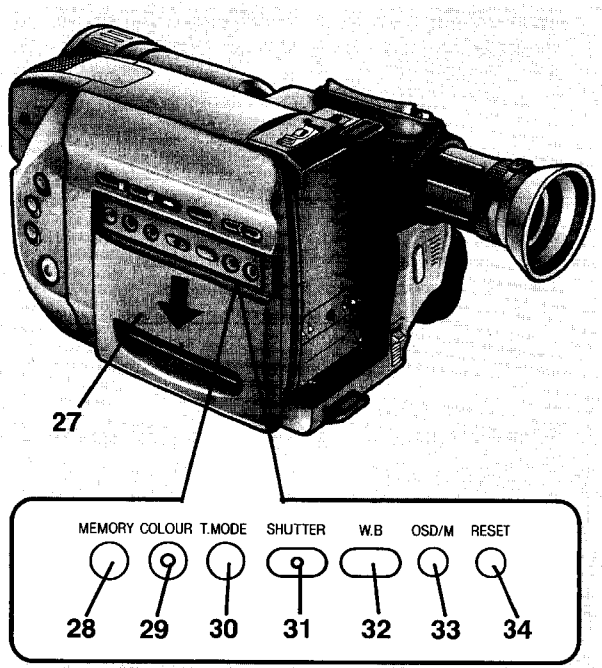
22 Backlight Button (P.46)
Press this button to brighten up the subject when shooting a backlit scene. By pressing it repeatedly, the degree of backlight compensation can be varied in three steps.

23 Focus Button (P.57)
Press this button to select manual focus adjustment for shooting.

24 Focus +/– Buttons (P.58, 59)
After selecting the manual focusing mode with the Focus Button, adjust the focus to the desired subject by pressing these buttons.

25 Shoulder Strap Holders (P.24)
Attach the Shoulder Strap to these two holders.

26 DC Input Socket (P.19)
When using the AC Adaptor or the Car Battery Cord (optional) as power supply instead of the Battery Pack, connect the Power Supply Cable to this socket.



Note:
The illustration shows the Movie Camera with the Operation Cover lowered.
The Movie Camera is shipped with the Operation Cover in its closed position.

27 Operation Cover (P.29, 48, 49, 54)
When the Operation Cover is slid downwards, the Operation Buttons behind it become accessible.

28 Memory Button (P.49)
Press this button to input a title into memory.

29 Title Colour Select Button (P.50)
Press this button to select the colour in which you want the memorized title to be superimposed onto the picture. You can choose any of 8 solours available.

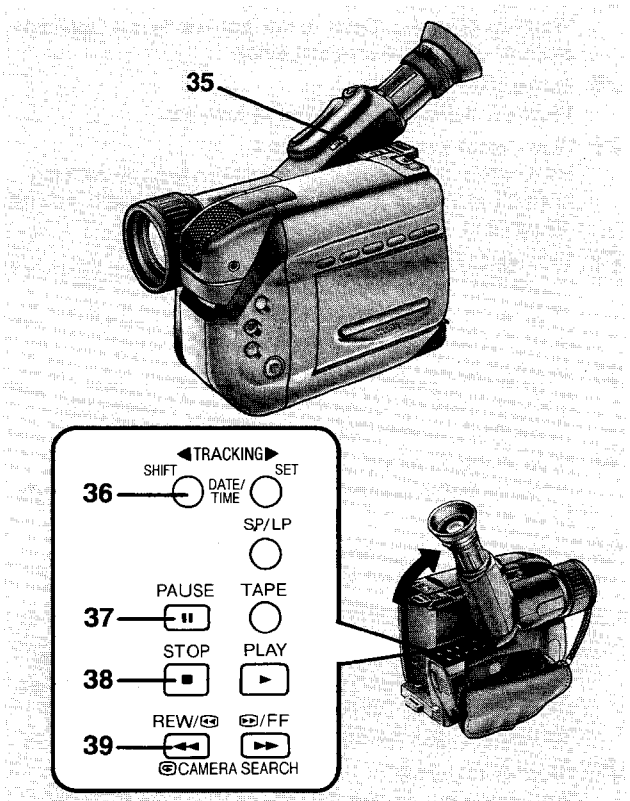
30 Title Mode Select Button (P.51)
Press this button to select the "WIPE ↓" "WIPE ↑" or "SCROL" superimposing mode for the memorized title instead of the normal superimposing mode.

31 Shutter Speed Select Button (P.48)
Press this button to select a higher shutter speed when shooting scenes with fast movements.

32 White Balance Adjustment Button (P.54, 55, 56)
Press this button to select manual white balance adjustment for shooting.

33 On-Screen Display/Memory Button (P.29)
Press this button to make the indications in the Viewfinder disappear. (Some indications such as [DEW] cannot be cancelled.)
Press this button also to activate the tape counter memory function so that the tape position corresponding to the tape counter indication "M0:00.00" can be found easily during fast-forwarding or rewinding of the tape.

34 Reset Button (P.29)
Press this button to reset the tape counter to "0:00.00".



35 Viewfinder Rest/Release Knob (P.25, 31)
Push this knob towards "15° REST" when the Viewfinder is in the raised position, so when lowered it will rest in the 15° raised position. Push it toward "RELEASE ◀" before lowering the Viewfinder to the horizontal position.

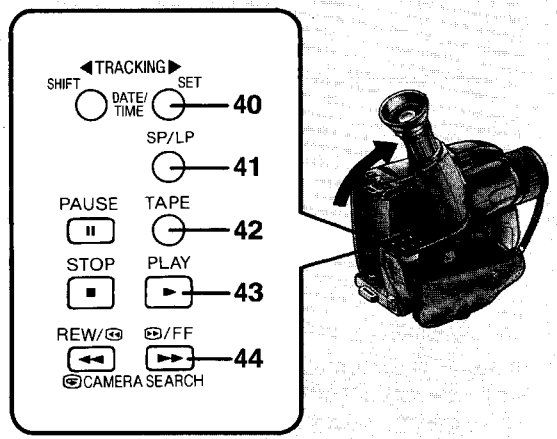
Note:
The Viewfinder is shown in the 15° raised position which may be more comfortable for holding the Movie Camera during shooting.

36 Tracking/Date/Time Shift Button (P.21, 63)
Use this button for the following operations:
1) Press it to advance to the next item during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.

37 Pause Button (P.36, 64)
Press this button during playback to be able to watch a still picture.

38 Stop Button (P.62)
Press this button to stop the playback.

39 Rewind/Review Button (P.29, 35, 37, 62, 64, 65)
Use this button for the following operations.
1) With the Operation Switch set to "CAMERA":
Press it after shooting a scene to play back the last few seconds of the recording for quick confirmation that the recording is okay.
2) With the Operation Switch set to "VTR":
Press it to rewind the tape from the stop mode.
Keep it pressed during playback for high-speed playback in reverse direction.



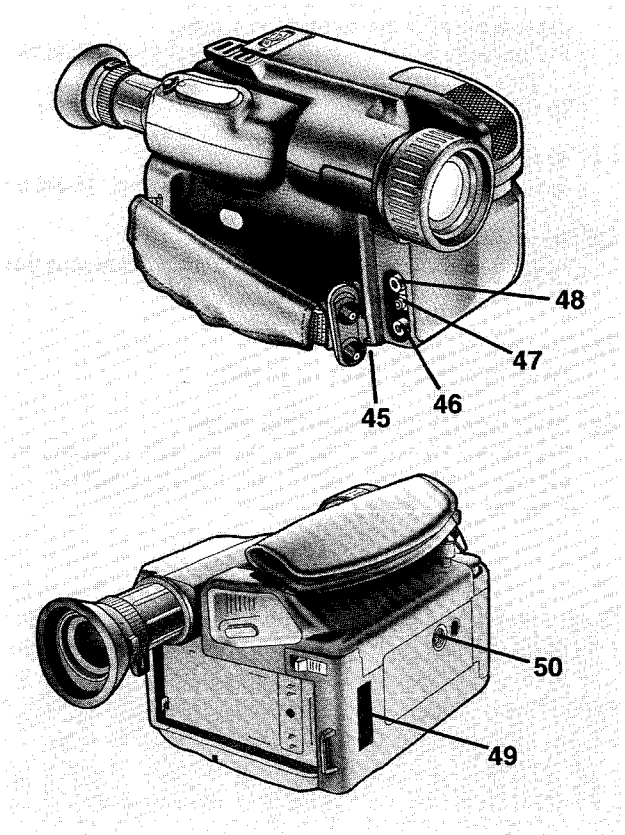
40 Tracking/Date/Time Set Button (P.21, 63)
Use this button for the following operations.
1) Press it to start the operation of the clock after setting the time and date.
2) Press it when you want to adjust the tracking manually.

41 Recording Speed Select Button (P.28, 34)
Press this button to select the desired tape speed (SP⟷LP)

42 Remaining Tape Time Button (P.28)
Press this button to select the length of the cassette tape that is used for shooting or playback.

43 Play Button (P.36, 62)
Press this button to start the playback.

44 Fast Forward/Cue Button (P.29, 64, 65)
Press this button to wind the tape forward at high speed from the stop mode. Keep it pressed during playback for high-speed playback in forward direction.



45 **Socket Cover (P.59, 60)**
Attach this Socket Cover to the sockets to protect them against dust and dirt when no cables are connected.

46 **Audio Output Socket (P.59, 60, 66)**
Connect this socket via audio cable with the audio input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

47 **RF DC Output Socket (P.60)**
Connect this socket with the RF Adaptor to supply it with power for playback directly from the Movie Camera.

48 **Video Output Socket (P.59, 60, 66)**
Connect this socket via video cable to the video input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

49 **Button Type Battery Holder (P.20)**
It holds the Button Type Battery (CR2032) that maintains the clock operation and keeps the title in memory while the Movie Camera is turned off.

50 **Tripod Receptacle**
When using a tripod for stable shooting, attach the screw of the tripod to this receptacle.

Note:
When attaching a tripod other than a Panasonic accessory, ensure that the length of the mounting screw is less than 7 mm, to avoid damage to the Movie Camera.

Before starting to shoot with the Movie Camera, be sure to make the following preparations:

1 **Select the power source to be used.**
There are three power supply units available for this Movie Camera:
   1) **Battery Pack (for shooting outdoors) (P.16)**
   Before using the Battery Pack, charge it with the AC Adaptor.
   2) **AC Adaptor (for shooting indoors) (P.19)**
   When a mains socket is in close proximity of the place where the Movie Camera is used for shooting.
   3) **Car Battery Cord (for shooting from inside a car. (P.19)**
   The Car Battery Cord (VW-ACC11E) is available as an optional accessory.

2 **Insert the Button Type Battery and adjust the date and time. (P.20, 21)**
The Button Type Battery is necessary to maintain the clock operation while the Movie Camera is turned off.

3 **Extend the Viewfinder (P.23)**

4 **Adjust the Eyepiece Corrector Ring. (P.23)**
Adjust it to your eyesight so that the indications in the Viewfinder can be seen clearly.

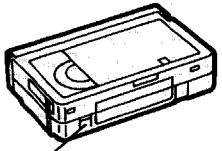
5 **Adjust the length of the Grip Belt. (P.24)**
Adjust it to the size of your hand so that the Zoom Buttons and the Start/Stop Button can be pressed comfortably with the fingertips.

6 **Remove the Lens Cap and attach it to the Grip Belt. (P.24)**

7 **Attach the Shoulder Belt. (P.24)**
If necessary.

8 **Adjust the angle of the Viewfinder. (P.25)**

9 **Insert a Cassette for shooting. (P.26)**
Make sure that the erasure prevention tab is intact.



Erasure Prevention Tab

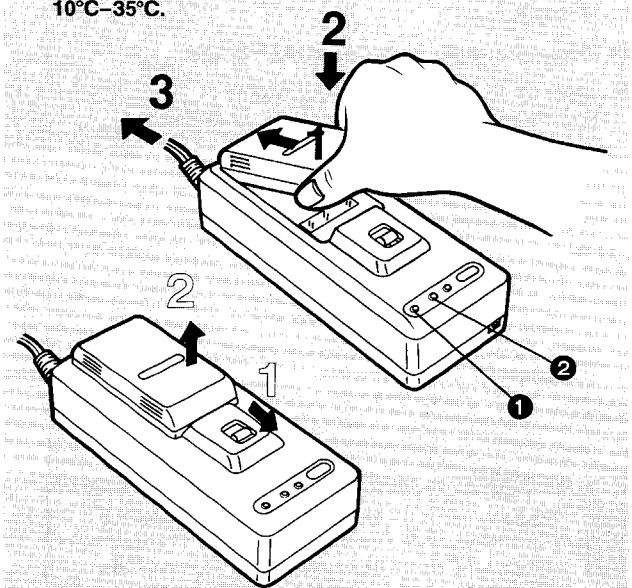
The following Compact Video Cassettes are available for this Movie Camera.

	Cassette Name	Recording Time	
		SP Mode	LP Mode
VHS-C	EC-30	30 minutes	60 minutes
	EC-45	45 minutes	90 minutes
S-VHS-C	SE-C30	30 minutes	60 minutes
	SE-C45	45 minutes	90 minutes

Using the Battery Pack

1) Charge the Battery Pack

NOTE:
The Battery Pack is shipped in a discharged condition and must be charged before it can be used.
- **Charge the Battery Pack within a temperature range of 10°C–35°C.**



- The AC Adaptor can be used to supply power to the Movie Camera or to charge the Battery Pack. It cannot do both simultaneously.

1 **Insert the upper end of the Battery Pack into the connector on the AC Adaptor as shown in the illustration.**

2 **Press the rear portion down until it locks with a click.**

3 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ❶ lights up, and several seconds later the Charging Lamp ❷ lights up, too.
- When the charging is completed, the Charging Lamp ❷ goes out.

■ Charging Time and Maximum Time for Continuous Shooting

Battery Pack No.	VW-VBS1B Supplied	VW-VBS2B Optional	VW-VBR1B Optional	VW-VBR2B Optional
Charging time in minutes	60	120	60	120
Max. shooting time in minutes※	45 (50)	90 (100)	45 (50)	90 (100)
	( ) is a shooting time without digital function.			

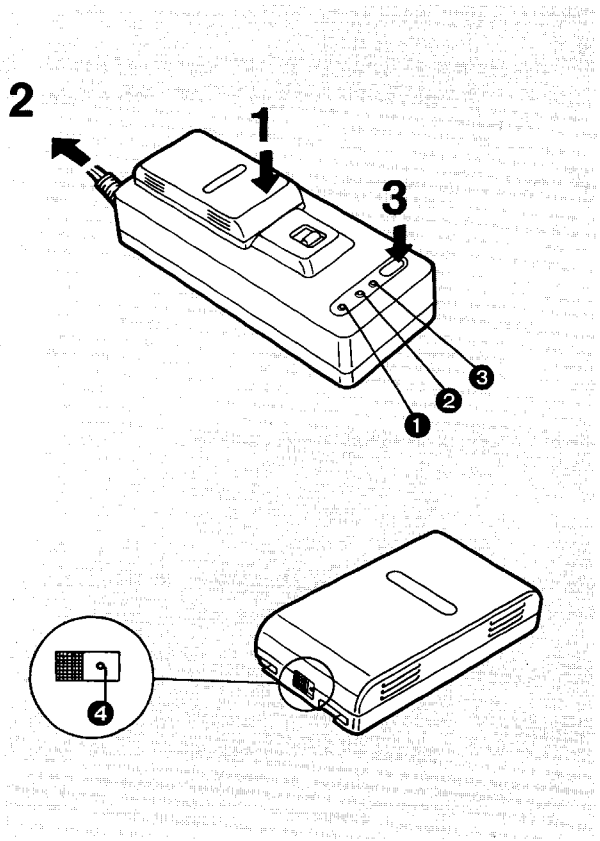
※) Continuous shooting with a digital function, using a fully charged Battery Pack at 25°C. In actual use, depending on the charging condition of the Battery Pack, the temperature, the actual operation during recording, etc., the possible recording time may be shorter.
So, it is recommended to prepare a spare Battery Pack.

- The Battery Pack is charged after the time indicated in the table. However the Battery Pack should be continue charging for a further 2 hours to achieve maximum operation time.

■ To eject the Battery Pack...

1 **Slide the Battery Eject Lever in the direction of the arrow.**

2 **Remove the Battery Pack.**



■ **How to use the convenient Discharge→Charge Function**
If a Battery Pack is recharged repeatedly in not completely discharged condition, the so-called "memory effect" will occur, and the operation time of the recharged Battery Pack will gradually become shorter. Therefore, it is recommended to regenerate the Battery Pack after approx. every fifth recharging by using the convenient Discharge→Charge Function.

1 **Attach the Battery Pack on the AC Adaptor.**

2 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ❶ lights up, and soon after the Charging Lamp ❷ lights up.

3 **Press the Discharge→Charge Button more than 1 second.**
- The Discharge Lamp ❸ lights up, and the Charge Lamp ❷ goes out.

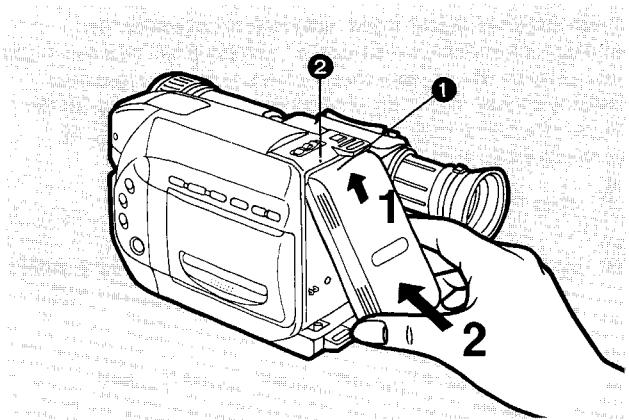
■ **When the discharging is finished,** the Charge Lamp ❷ lights up instead, and the charging starts.

■ **When the charging is completed,** the Charging Lamp ❷ goes out.

- When using the Discharge→Charge Function, the charging takes five or six times as long as normal charging.

■ **How to use the Charging Confirmation Marker.**
This marker makes it convenient to distinguish between charged and discharged Battery Packs. For example, slide the knob so that the dot ❹ is visible to mark a charged Battery Pack, and slide it so that the dot is not ivsible for a partially of fully discharged Battery Pack.

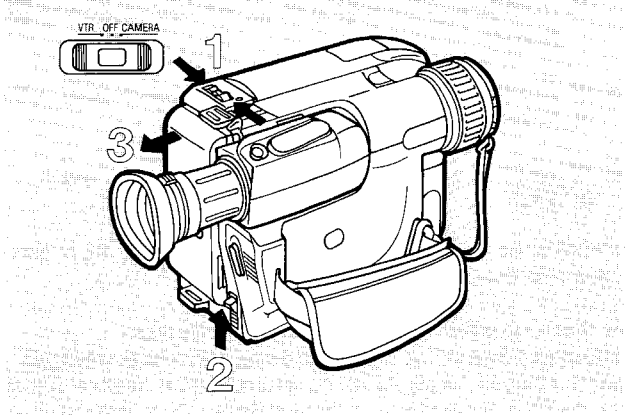
2) Attach the Battery Pack to the Movie Camera



■ **How to attach the Battery Pack**

1 **Align the mark ❶ at the top of the Battery Pack with that on the Movie Camera ❷ and insert the Battery Pack with its upper part first.**

2 **Attach the Battery Pack until it locks with a click.**



■ **How to remove the Battery Pack**

1 **Press the Operation Switch and slide it to "OFF".**

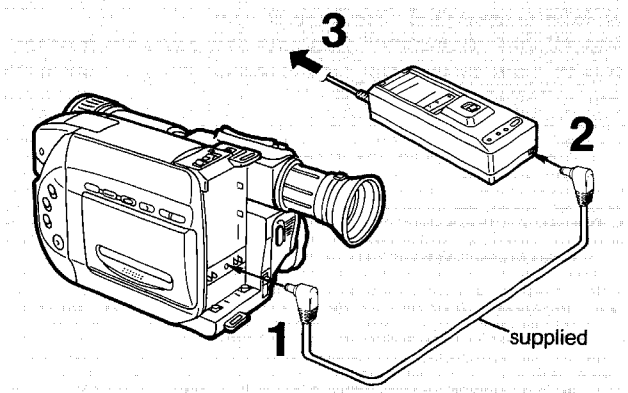
2 **About 10 seconds later, push the Battery Eject Lever upward and,**

3 **Pull off the Battery Pack.**

Caution:

- If the Battery Pack is removed during shooting or playback, the tape remains wound around the video head cylinder and could become damaged.

Using the AC Adaptor or Car Battery Cord (optional)



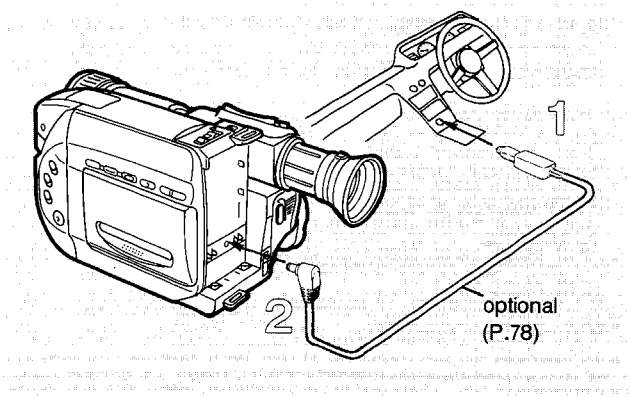
■ **How to use the AC Adaptor**

1 **Connect the Power Supply Cable to the DC Input Socket on the Movie Camera.**

2 **Connect the other end of the cable to the DC Output Socket on the AC Adaptor.**

3 **Connect the Power Cable of the AC Adaptor to the mains.**

Note:
When a Battery Pack is attached to the AC Adaptor, the Movie Camera cannot be supplied with power.



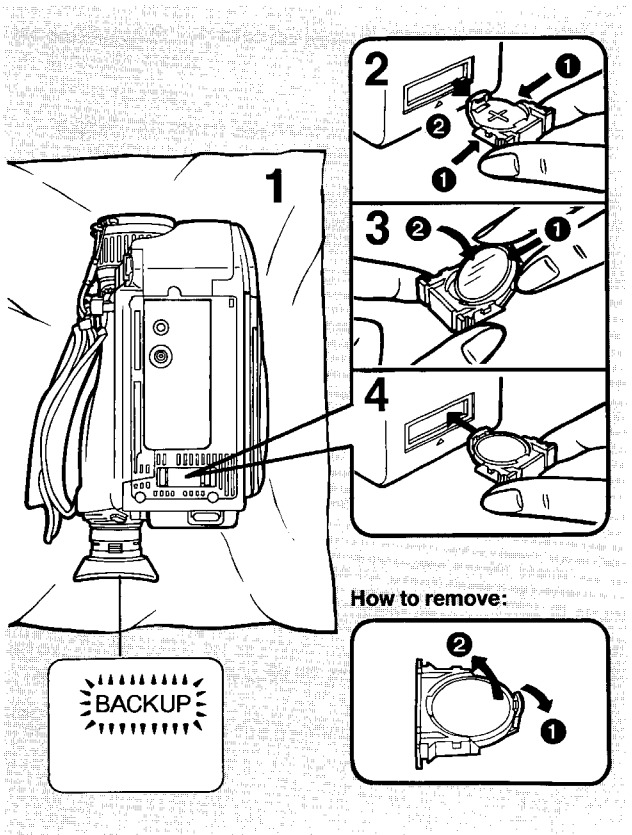
■ **How to use the Car Battery Cord (optional)**

1 **Start the engine and then plug the Car Battery Cord into the Cigarette Lighter Socket.**

2 **Connect the other end of the cord to the DC Input Socket on the Movie Camera.**

Notes:
- The Car Battery Cord can only be used with 12 V DC negative-grounded vehicles.
- Do not start the car engine while the Movie Camera is powered by the car battery.

1) Insert the Button Type Battery



■ How to insert the Button Type Battery

The "CR2032" size Button Type Battery is necessary for storing the date & time, selected tape speed and title in the memory, when the Movie Camera is turned off.

1 **Turn the Movie Camera upside down and place it on a soft cloth.**

2 **Push the two stoppers toward each other ❶ and pull out the Battery Holder ❷.**

3 **Install the Button Type Battery with the (+) mark facing downward until it locks with a click.**

4 **Insert the Battery Holder back into the Movie Camera until it locks.**

- If the Button Type Battery is not inserted or if it is exhausted, the Indication "BACKUP" in the Viewfinder flashes for approx. 10 seconds when turning the Movie Camera on.

■ How to exchange the Button Type Battery

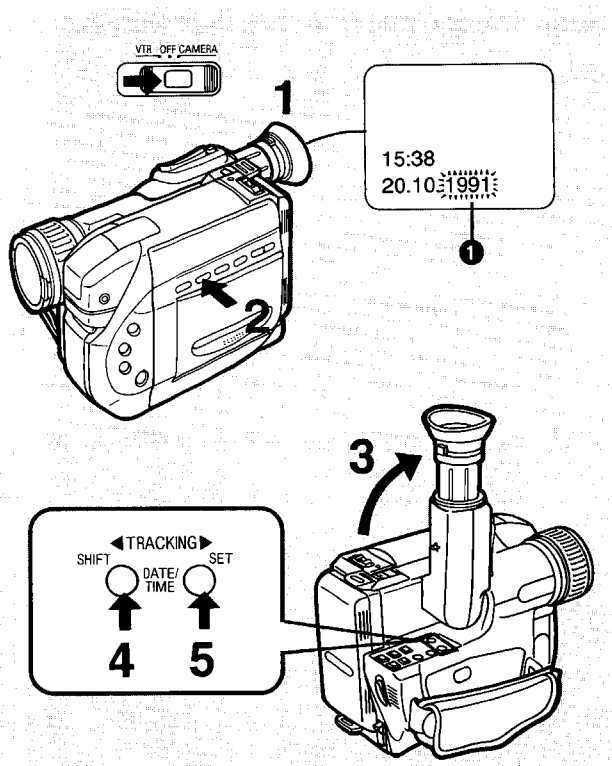
- Use only a "CR2032" size Button Type Battery.
- The CR2032 is manufactured by Panasonic only.

1) Before replacing the Button Type Battery, turn the Movie Camera off.
2) To exchange the Button Type Battery, follow the above operation steps.

Note:

- If the Date and Time indications in the Viewfinder are no longer correct after replacing the Button Type Battery, set the date and time as explained on the following page.
- Please refer to more detailed information for Battery replacement placed in page 77, 71.

2) Set the Date and Time



■ **How to set the date and time**

1 **Press the Operation Switch and slide it to "CAMERA".**

2 **Press the Date/Time Button.**
- The Date/Time Indication appears in the Viewfinder.

NOTE:
This unit utilizes a 24 hour clock system.

3 **Raise the Viewfinder.**

4 **Keep the Shift Button pressed for more than about 2 seconds.**
- The year portion ❶ of the Date/Time Indication starts to flash.
- The flashing portion of the Date/Time Indication can be changed with the Shift Button in the following order:

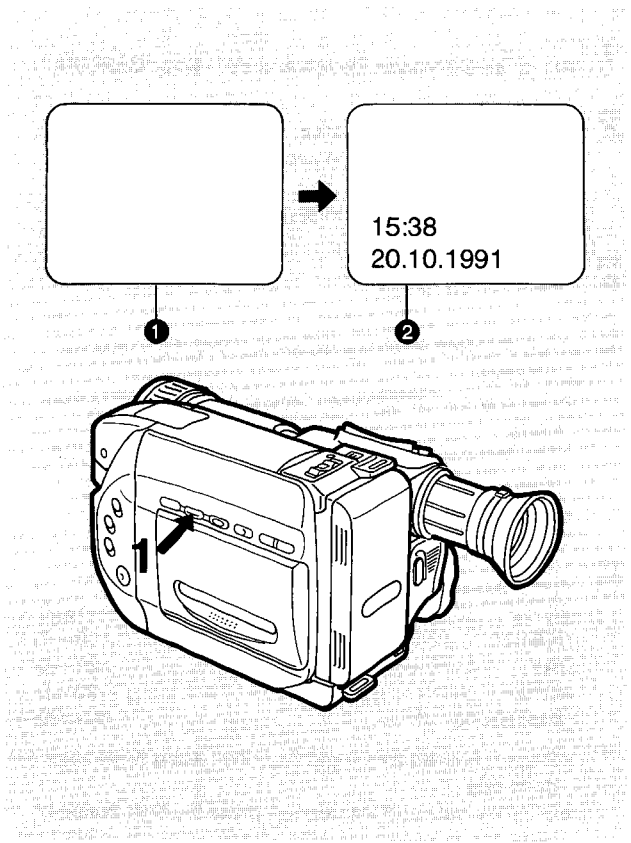
Year→Month→Day→Hour→Minute→" "→...

5 **Press the Set Button to change the figures.**

YEAR: **1990**→1991→ ..... →2089→**1990**→...
MONTH: 1→2→ ..... →12→1→...
DAY: 1→2→ ..... →31→0→...
HOUR: 0→1→ ..... →23→0→...
MINUTE: **00**→01→ ..... →59→**00**→...

- **Repeat procedures 4 and 5 until all items have been set correctly.**
- Once the date and time are set, press the Shift Button in response to an accurate time source so that the clock may begin to function.

How to Record the Date and Time During Shooting



During shooting or in the shooting pause mode, the Date/Time Indication displayed in the Viewfinder will also be recorded.

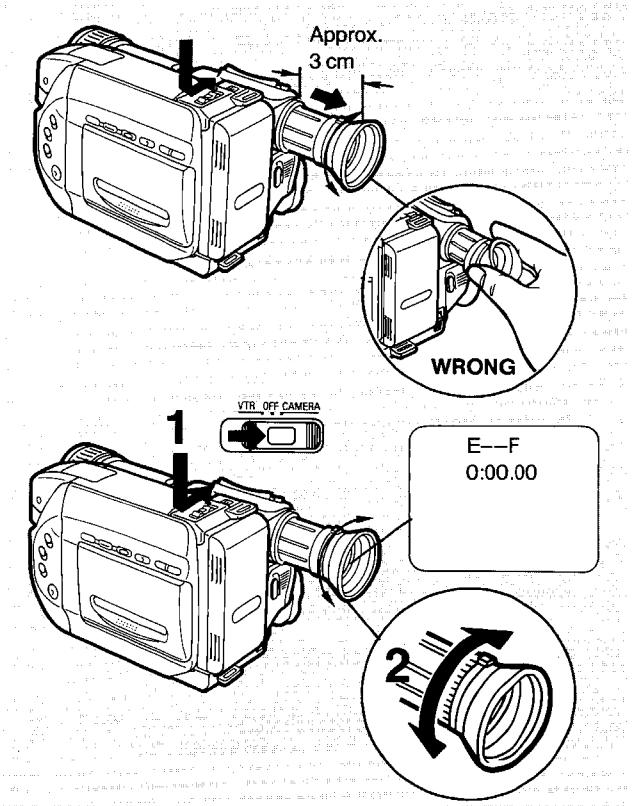
1 **Press the Date/Time Button.**

- At each press of the Date/Time Button, the Date/Time Indication ❷ in the Viewfinder can be changed in the following order:

❶	❷	❸
	15:38	
No indication ➡	20.10.1991 ➡	20.10.1991
	date and time	date only

- Press the Date/Time Button to select the desired indication.

Extending the Viewfinder/Adjust the Eyepiece Corrector



- When not in use, the Viewfiner is stored in its retracted position to make the Movie Camera more compact.
- Before shooting, extend the Viewfinder to its extended position (About 3 cm).

NOTE:

- Do not hold it by the Eyecup because the Eyecup could become detached from the Viewfinder.

■ How to adjust the Eyepiece Corrector

With the Eyepiece Corrector control, the Eyepiece can be adjusted to the user's eyesight.

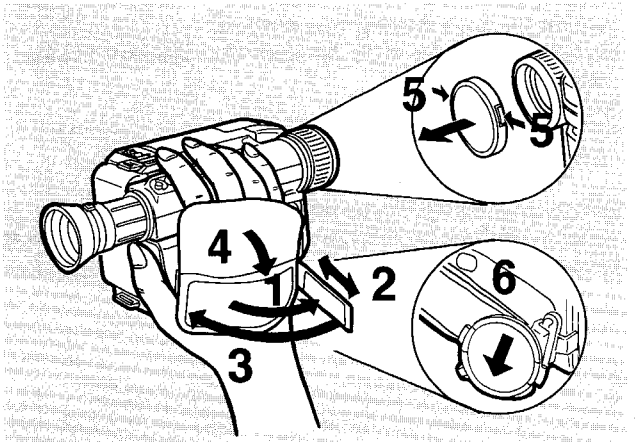
1 **Press the Operation Switch and slide it to "CAMERA".**

2 **Turn the Eyepiece Corrector Ring clockwise or counterclockwise until the indications in the Viewfinder are clearly focused.**

Note:

Do not apply any pressure on the Viewfinder except for extending or retracting it.

Adjusting the Grip Belt/Removing the Lens Cap/Attaching the Shoulder Strap



■ **How to adjust the Grip Belt**

The Grip Belt should be adjusted so that the Grip fits comfortably into the palm of your hand and the Start/Stop and Zoom Buttons can easily be pressed with the fingertips.

1 **Unfasten the velcro tape closure of the Grip Belt.**

2 **Adjust the length of the Belt to the size of your hand.**

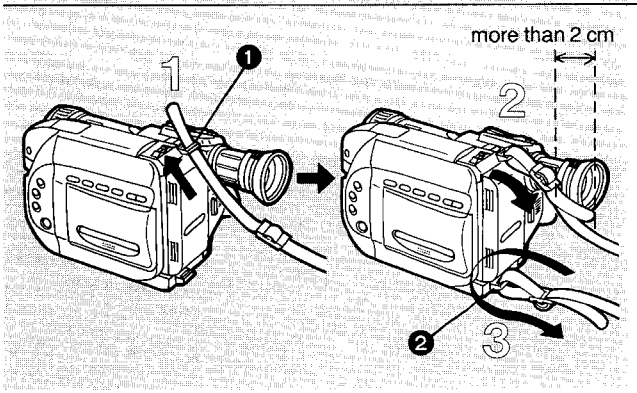
3 **Fasten the velcro tape closure.**

4 **Fold the cover down over the Grip Belt.**

■ **How to remove the Lens Cap**

5 **Press the Stoppers on both sides and pull it off.**

6 **Hook the Lens Cap to the Grip Belt to prevent it from getting in front of the Lens.**



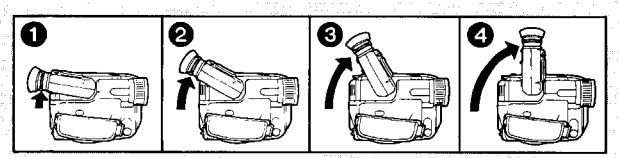
■ **How to attach the Shoulder Strap**

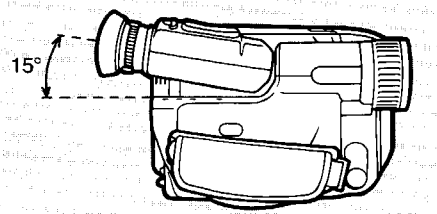
1 **Pull the end of the Shoulder Strap through the slit of the upper Shoulder Strap Holder ❶.**

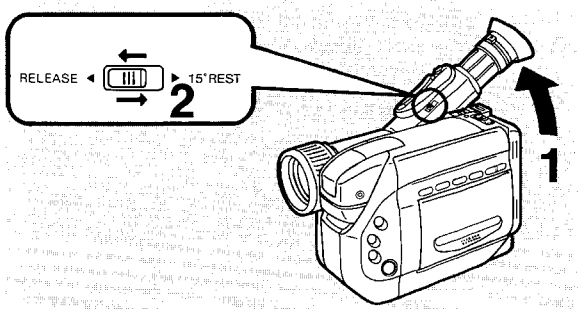
2 **Securely attach the end of the Shoulder Strap.**

3 **Attach the other end of the Shoulder Strap to the lower Holder ❷ in the same way as explained above.**

Adjusting the Angle of the Viewfinder







■ **How to use the convenient Viewfinder Lock Function**

For people with large hands, resting the Viewfinder in the 15° raised position ❶ makes it easier to operate the Zoom Button. The Viewfinder can be moved upwards in 4 steps. There is a click for each position. This makes it convenient to adjust the angle of the Viewfinder for different shooting positions, e.g. on a tripod or for low-angle shots.

1 **Raise the Viewfinder.**

2 **Push the knob towards "15° REST".**

- When the Rest/Release Knob is set to "15° REST" the Viewfinder can be raised but not lowered below the 15° position.

Note:

With the Rest/Release Knob set to the "15° Rest" position, do not attempt to lower the Viewfinder to the horizontal position or damage may result.

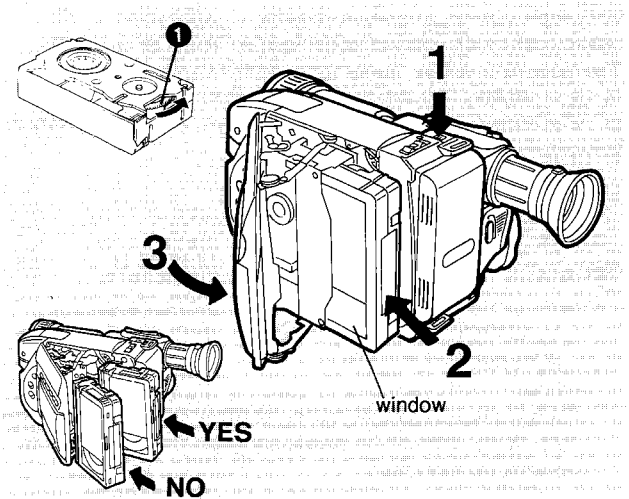
■ **To reset the Viewfinder to the horizontal position**

Push the Knob towards "RELEASE", then lower the Viewfinder.

Note:

- Do not use the Viewfinder to hold or carry the Movie Camera.

Inserting the Video Cassette



■ **How to insert the Video Cassette**

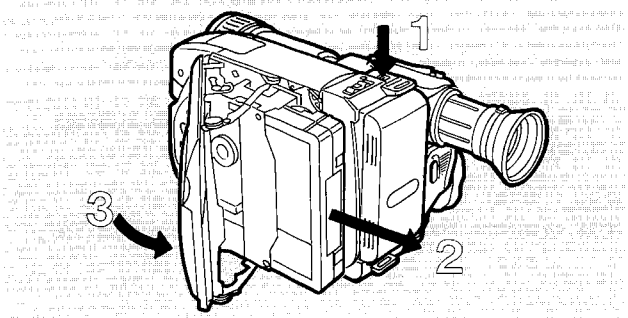
•Use only VHS-C (or S-VHS-C) Compact Video Cassettes.

Before inserting the Cassette, make sure that the tape is not loose. If it is loose, tighten it by turning the cog wheel ❶ on the side of the cassette in the direction of the arrow.

1 **Press the Cassette Eject Button.**
•It takes a few seconds before the Cassette Compartment Cover opens.

2 **Insert the Video Cassette as shown in the illustration.**

3 **Close the Cassette Compartment Cover inward, until it locks with a click.**



■ **How to eject the Video Cassette**

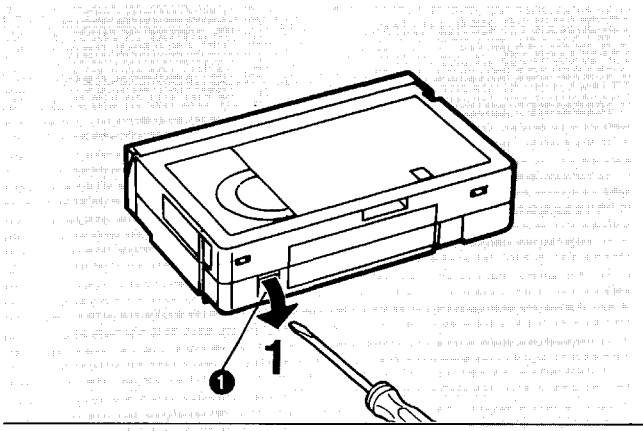
Make sure that power is supplied to the Movie Camera.

1 **Press the Cassette Eject Button.**

2 **Pull out the Video Cassette.**

3 **Close the Cassette Compartment Cover.**

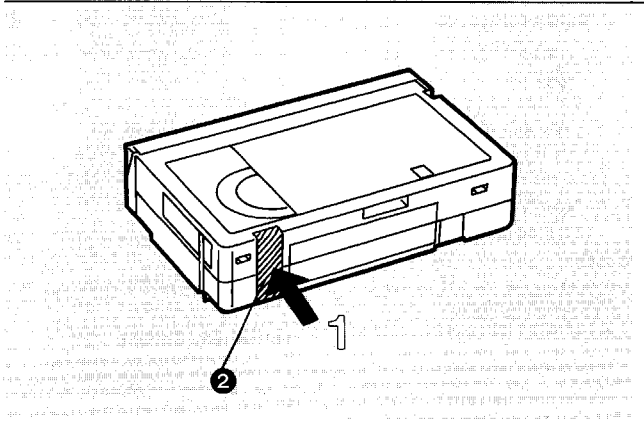
How to Prevent Accidental Erasure of Recordings



When shooting on a previously recorded tape, the previously recorded contents will be erased and replaced by the new recording. An important recording can be protected against accidentally erasing, by breaking out the tab ❶. If the tab is removed, recording on this Video Cassette is no longer possible.

■ **How to break off the tab**

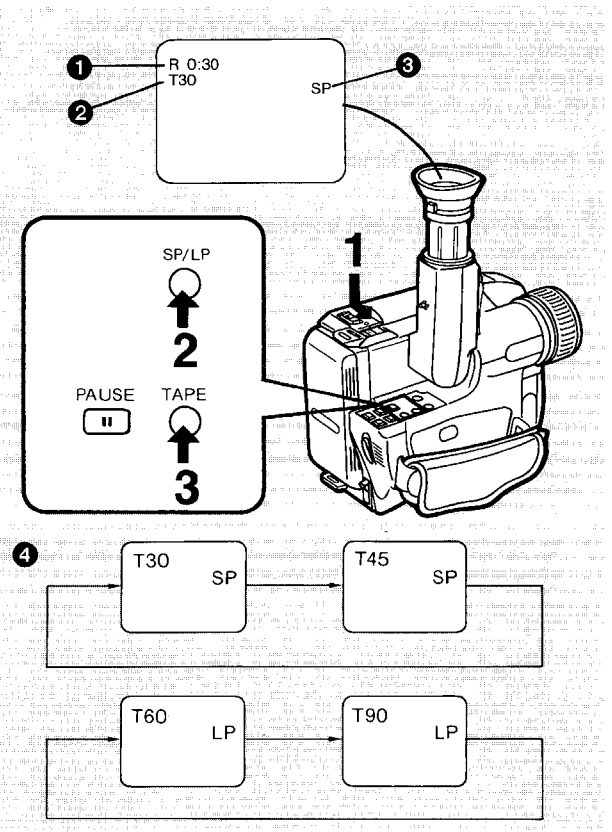
1 **Break off the tab with a screwdriver in the direction of the arrow.**



■ **How to record again onto a video cassette whose tab has been broken off**

1 **Cover the hole firmly with two layers of adhesive tape ❷.**
(The adhesive tapes substitutes for the tab.)

How to Confirm the Remaining Tape Time



- During shooting and playback, the remaining tape time is indicated in hours and minutes in the top left corner of the Viefinder ❶.
- It is important that the correct tape length ❷ is selected with the Remaining Tape Time Button.

After inserting a cassette in the cassette compartment...

1 **Press the Operation Switch and slide it to "CAMERA".**

2 **Press the Recording Speed Select Button until the [SP] Indication ❸ appears in the Viewfinder.**
(If you want to shoot in the [SP] mode.)

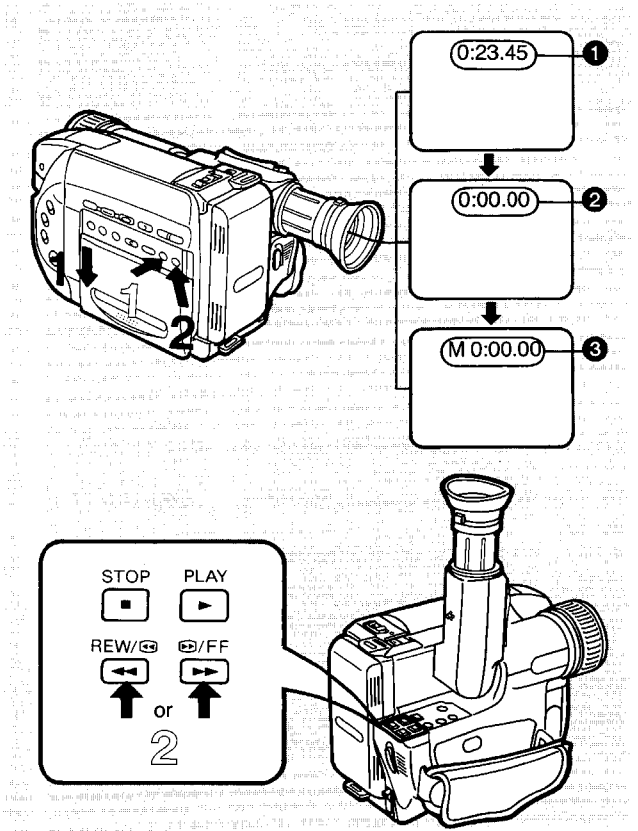
3 **Press the Remaining Tape Time Button until the [T30] Indication ❷ appears in the Viewfinder.**
(If your cassette is of the T30 type.)

- The remaining tape time ❶ in hours and minutes as well as the length of the inserted tape are indicated.
- At each press of the Remaining Tape Time Button, the Tape Length Indication ❷ in the Viewfinder changes as illustrated ❹.
- When shooting or playback is started, the "R" Indication flashes for a few seconds while the Movie Camera calculates the remaining tape time. As soon as the Remaining Tape Time Indication appears, the "R" Indication remains lit.
  (R: means Remaining)

Notes:

- When the remaining tape time becomes less than 2 minutes, the Indication flashes.
- When the cassette is removed from the Movie Camera, the indication automatically changes over to the first indication of each mode: In the SP mode, it changes over to "T30"; in the LP mode, it changes over to "T60".

How to Use the Tape Counter Indication



The Tape Counter Indication shows the elapsed tape time in hours, minutes and seconds ❶.

■ **How to reset the tape counter to "0:00.00"...**

1 **Slide down the Operation Cover.**

2 **Press the Reset Button.**
The tape counter is reset to "0:00.00".

- The tape counter is automatically reset to "0:00.00" when the cassette is taken out and a new cassette is inserted.

Notes:

- After rewinding the tape, the tape counter may read different from its original indication. This does not indicate the machine is at fault.
- When the tape is rewound further than the tape counter position "0:00.00", the minus indication "−" appears in front of the Tape Counter Indication.

■ **How to search for memorized tape position after shooting or playback...**

1 Press the On-Screen/Memory Button at the tape position that is to be memorized.
- The "M" Indication ❸ appears in the Viewfinder next to the Tape Counter Indication.

(OSD/M: means On-Screen Display/Memory)

2 Press the Rewind/Review or Fast Forward/Cue Button.
- The tape stops automatically at about the point where the tape counter reads "M 0:00.00".

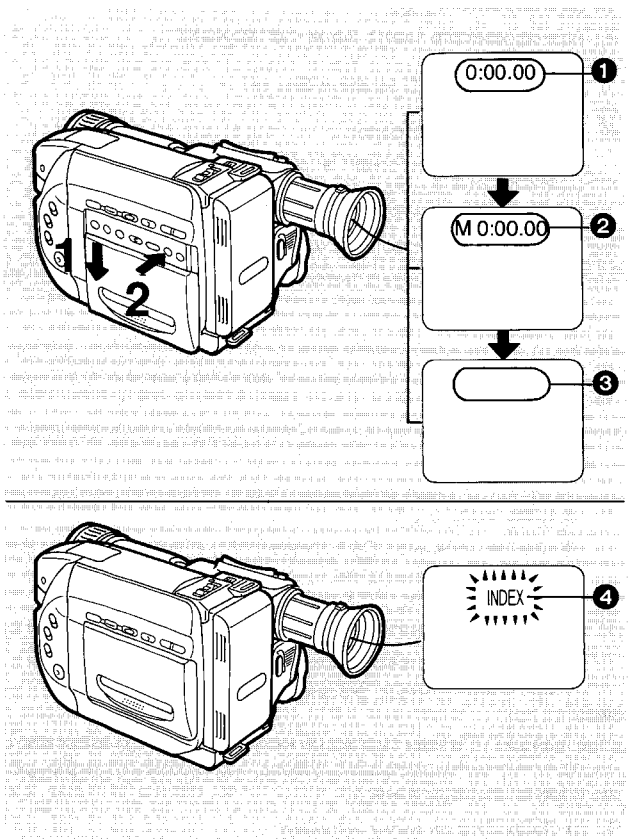
Note:

If the figures in the tape counter do not change during fast forward, rewind or any of the playback functions, this means that nothing is recorded on that tape portion.

■ **To cancel the memory function...**

Press the On-Screen/Memory Button.
- The "M" indication disappears.

How to Use the On-Screen Display Function



■ **How to turn off the indications in the Viewfinder**

1 **Slide down the Operation Cover.**

2 **Press the On-Screen/Memory Button twice.**

- The indications in the Viewfinder disappear ❸ except the Warning and Alarm Indications.

■ **To return to the initial mode...**

Press the On-Screen Display/Memory Button again.

- At every press the On-Screen Display/Memory Button, the Tape Counter Indication changes ❶➡❷➡❸➡❶...

■ **How to use the index signals**

The index signals make possible the use of the VHS Index Search or the Intro Scan function when playing back the tape on a Video Tape Recorder equipped with these functions.

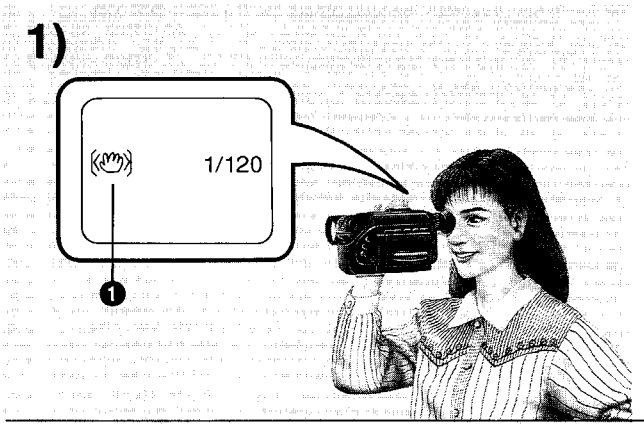
An index signal is recorded automatically in the following cases:

- When shooting is started for the first time after attaching the Battery Pack.
- When shooting is restarted after the cassette is exchanged or after playing back the tape by pressing the Play Button.

In both of these cases, the "INDEX" Indication ❹ in the Viewfinder flashes for a few seconds.

- For the correct functioning of the VHS Index Search and Intro Scan functions on the Video Tape Recorder, the index signals should be spaced at least 2 minutes in the SP mode and 5 minutes in the LP mode.

How to Hold the Movie Camera for Shooting

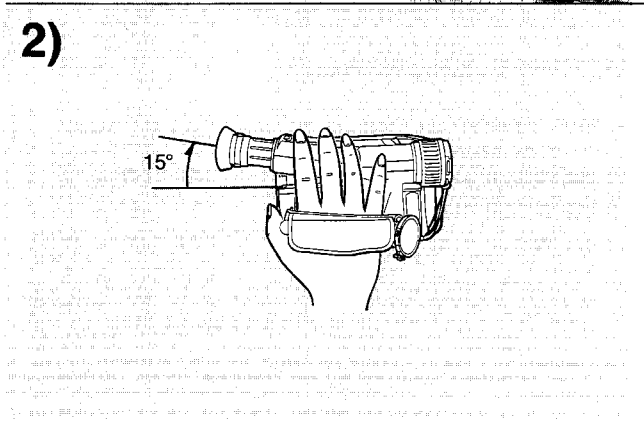


1) Shooting with the Digital Image Stabilizer Function

With this function, even scenes shot with only one hand or shot from a moving vehicle will be rock-steady.

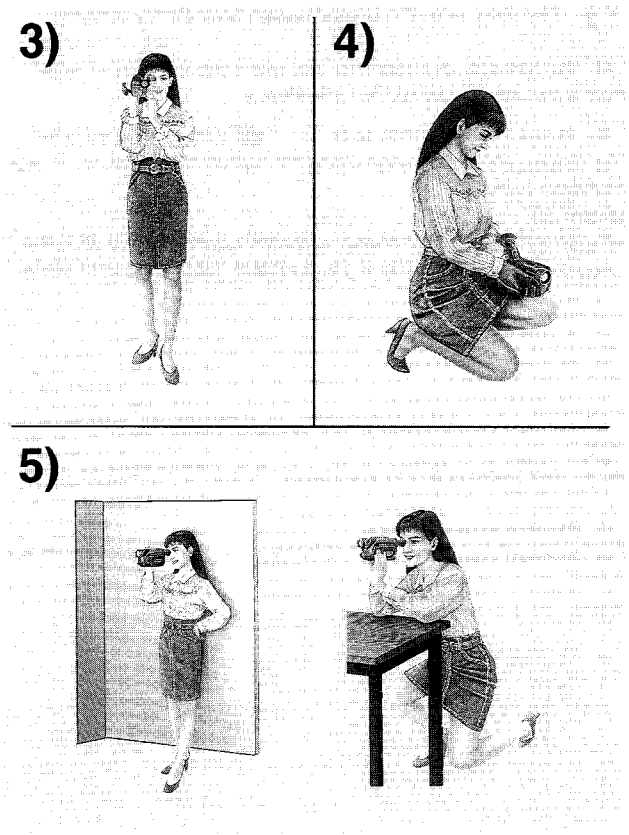
If the Image Stabilizer Indication " " ❶ is not displayed in the Viewfinder, press the Image Stabilizer Button to activate the Image Stabilizer Function.
(See P.38)

- When walking while shooting, keep both eyes open so that you can see where you are going and what is happening around you.



2) Shooting with the Viewfinder in the 15° raised position

For people with large hands.
Put the Viewfinder Rest/Release knob to 15° REST position. (P.25)



3) Shooting without the Image Stabilizer Function

- Hold the Movie Camera with both hands with your elbows slightly in front of your lower chest.
- Hold the eyecup of the viewfinder as close as possible to your right or left eye.
- Take a firm stance with the legs slightly apart.
- For stable images, it is recommended to use a tripod (optional) whenever possible. (P.78)

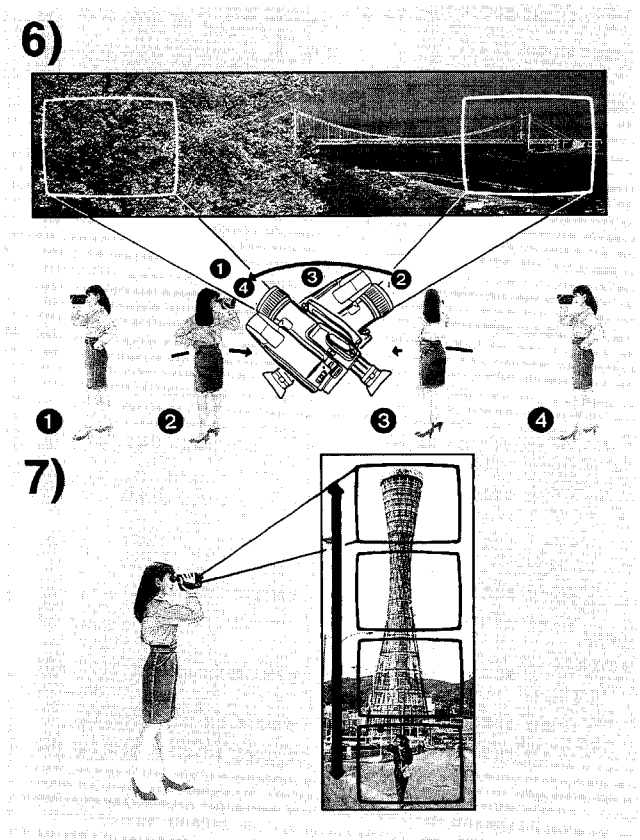
4) Low-Angle Shooting

Adjust the angle of the viewfinder according to the position in which the Movie Camera is held.

- If the Movie Camera is not held firmly in stable position, the picture in the viewfinder cannot be watched properly.

5) For More Stable Pictures

- Stabilize the Movie Camera by leaning against a wall, pillar or some other stable subject.
- Stabilize the Movie Camera by resting your elbows on a table or another stable horizontal surface.



6) For Panning

Moving the Movie Camera from left to right or vice versa to follow a moving subject or to provide a panoramic effect is called panning.

❶ First, turn your body so that you are facing the point where the panning is to end.

❷ Without moving your feet, turn your upper body to face the point where the panning is to start, and then start shooting.
Shoot in this position for about 5 seconds.

❸ Gradually turn your upper body toward the point where the panning is to end.
Be careful to move the Movie Camera horizontally and very slowly so that the viewer can easily follow the action.

❹ Finish the panning at the same point as in step ❶.
At this point, continue shooting for about 5 seconds.

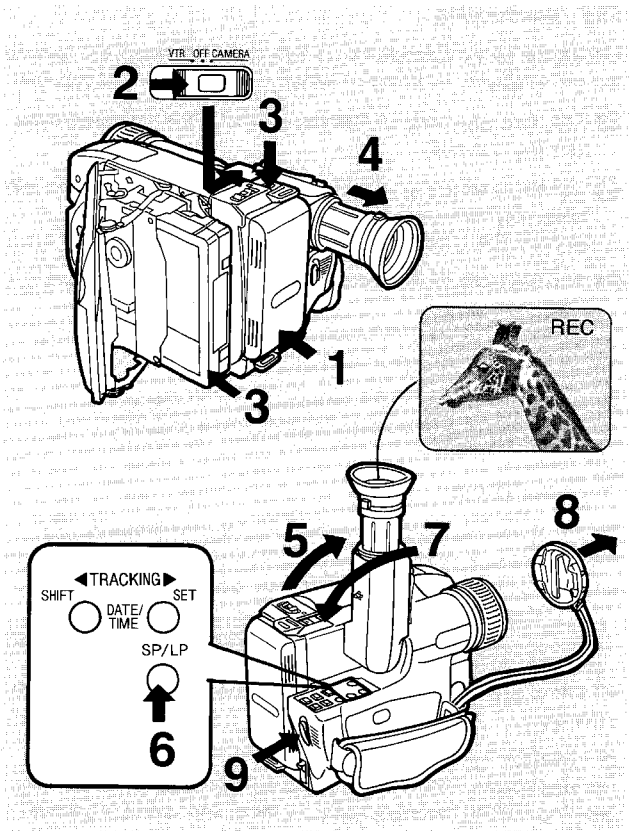
7) For Tilting

Moving the Movie Camera vertically from top to bottom or vice versa to follow a moving object or to show a narrow tall object, such as a tall building or tree in its full height, is called tilting.

- At the start and at the end of the tilting shot, continue shooting with stable camera position for about 5 seconds in the same way as for panning shots.
- To emphasize the height of a subject, shoot it from the bottom to the top.

■ Hints for Panning and Tilting

For best results, define the start and end points and rehearse the panning or tilting before actually shooting, and keep the panning speed very slow.



■ **How to shoot from the beginning of the tape.**

1 **Attach the charged Battery Pack.**

2 **Press the Operation Switch and slide it to "CAMERA".**

3 **Press the Cassette Eject Button and insert a cassette with intact erasure prevention tab.**
- A few seconds after closing the cassette compartment, the Movie Camera will be in the shooting pause mode.

4 **Extend the Viewfinder.**

5 **Raise the Viewfinder.**

6 **Press the Recording Speed Button to select SP or LP.**

7 **Lower the Viewfinder.**

8 **Remove the Lens Cap.**

9 **Press the Start/Stop Button.**
- The shooting starts.

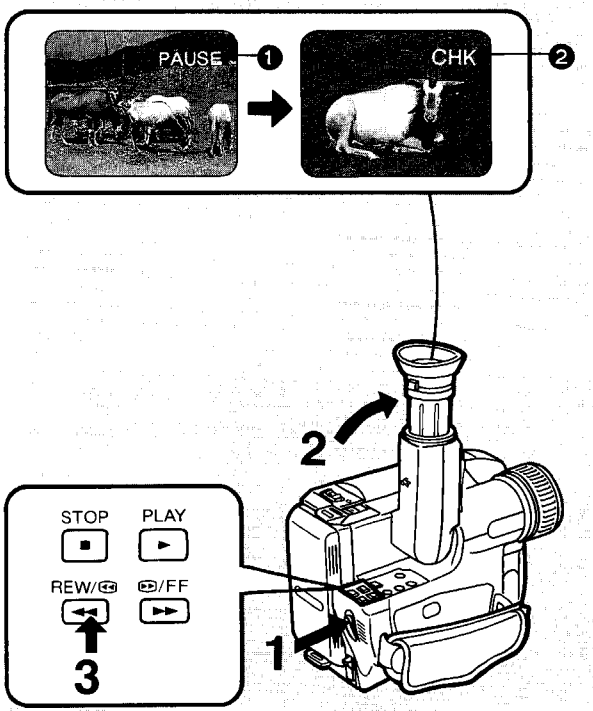
■ **To pause the shooting...**
Press the Start/Stop Button.

■ **To shoot the next scene(s)...**
Press the Start/Stop Button again.

■ **To stop the shooting...**
Press the Start/Stop Button to pause the shooting and then set the Operation Switch to "OFF".

Note:
- If the Movie Camera is left in the shooting pause mode for more than 6 minutes, the shooting pause mode will be cancelled and the Viewfinder will be turned off (recording lock mode). To resume shooting from this condition, set the Operation Switch to "OFF" and then to "CAMERA" again. If the Movie Camera is left in the recording lock mode for more than 48 hours, it will automatically switch off completely.

How to check of the Recorded Scene



■ **How to check the recorded scene**

1 **Press the Start/Stop Button to pause the shooting.**
•The "PAUSE" indication ❶ appears in the Viewfinder.

2 **Raise the Viewfinder.**

3 **Press the Rewind/Review Button.**

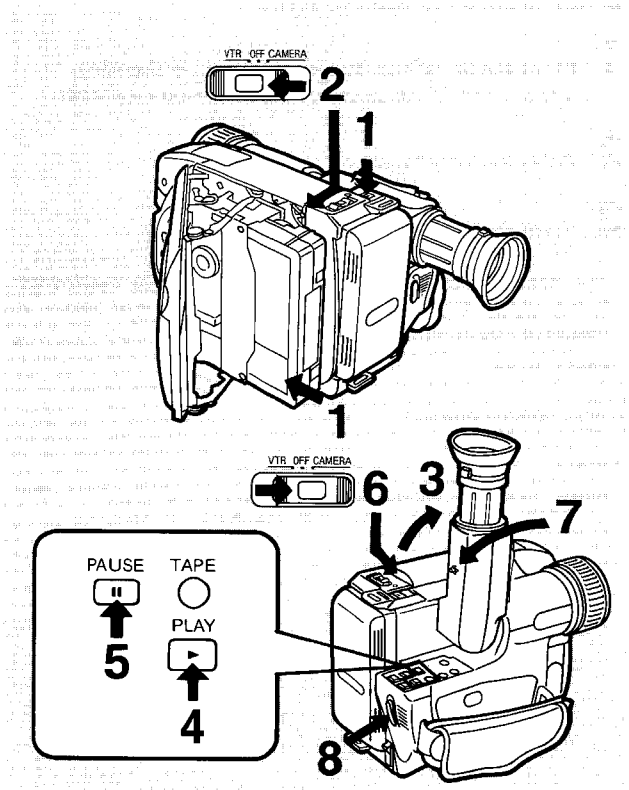
•The "CHK" Indication ❷ in the Viewfinder lights up, and the last 2–3 seconds of the last recorded scene will be played back in the Viewfinder. After that, the Movie Camera is again in the shooting pause mode.

(CHK: means check.)

Note:
During shooting, use this function to confirm from time to time that the recording has been performed correctly.

How to Shoot with Clean Edits

Using the convenient assemble editing function



■ **How to add new scenes at the end of previous shots.**

- This function makes it possible to achieve smooth transitions between a previous and the new shooting.

1 **Press the Cassette Eject Button and insert the recorded cassette.**

2 **Press the Operation Switch and slide it to "VTR". (VTR: means Video Tape Recorder.)**

3 **Raise the Viewfinder.**

4 **Press the Play Button.**
- The playback starts.

5 **After reaching the point where you want to add the next scene (thereby erasing the rest of the previously record scene), press the Pause Button.**

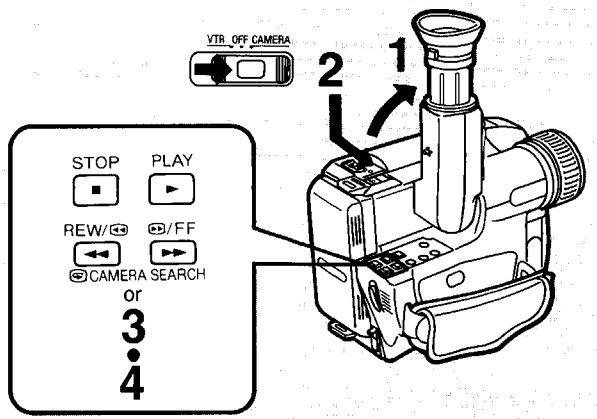
6 **Slide the Operation Switch to "CAMERA".**

7 **Lower the Viewfinder.**

8 **Press the Start/Stop Button to start shooting the new scene.**
- The shooting starts.

How to Search for a Previously Shot Scene

Using the convenient camera search function



■ **How to search for a point in a recorded scene**

After insert the recorded cassette...

1 **Raise the Viewfinder.**

2 **Press the Operation Switch and slide it to "CAMERA".**

3 **Keep the Rewind/Review Button pressed.**

- The recorded scene will be played back at hight speed in reverse direction.

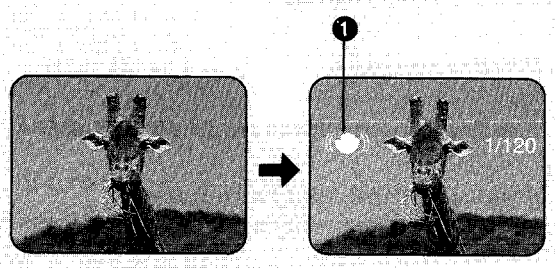
Or keep the First Forward/Cue Button pressed.

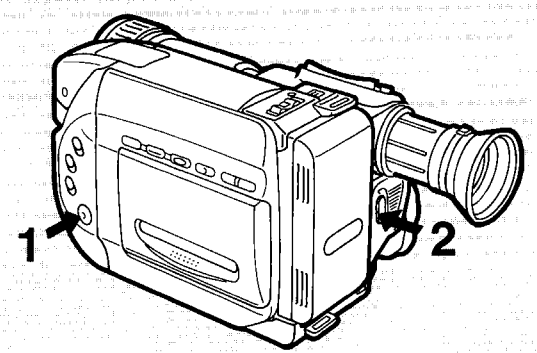
- The recorded scene will be played back at normal speed in forward direction.

4 **Release your finger from the Rewind/Review or First Forward/Cue Button after reaching the point.**

How to Shoot with the Digital Image Stabilizer Function

Using the digital image stabilizer function





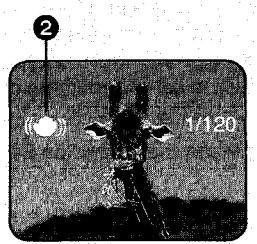
This function automatically corrects the slight shaking of the camera that often occurs during hand-held camera shooting and zooming.
It is especially practical for the following shooting situations:
- Zooming in on a subject.
- Shooting while walking.
- Shooting from inside a moving vehicle.

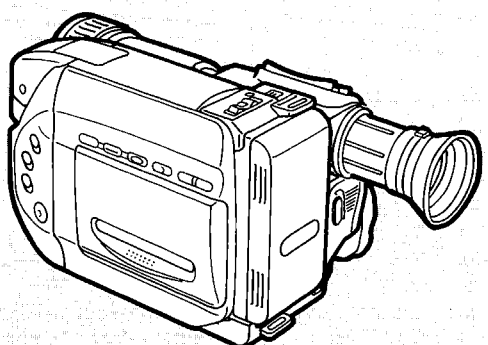
1 **Press the Image Stabilizer Button.**
The image stabilizer function is activated with the Image Stabilizer Button.
- When the image stabilizer function is activated, the "✋" Indication ❶ and the Shutter Speed Indication (1/120) appear in the Viewfinder.

2 **Press the Start/Stop Button.**
- The shooting starts.

■ To cancel this function...
Press the Image Stabilizer Button.

Hint for shooting with the digital image stabilizer function
- The subject appears slightly enlarged in the Viewfinder and the shutter speed is set to 1/120 second (the "1/120" Indication in the Viewfinder is displayed) instead of the normal 1/50 second (which would not be indicated).





Notes on shooting with the image stabilizer function

■ **Shooting conditions...**

- The picture stabilizing effect may not be sufficient, if the shaking of the Movie Camera is strong or in the following shooting conditions:
  - —A subject with horizontal or vertical stripes.
  - —An extremely bright subject.
  - —A dark subject. (The " " Indication ❷ will flash in the Viewfinder.) Increase the amount of light.
  - —A subject under many fluorescent lamps.
  - —A fast-moving subject.
- When shooting under fluorescent light, the brightness of the picture may fluctuate.
- The resolution of the picture will be slightly reduced.

■ **Shooting with high speed shutter...**

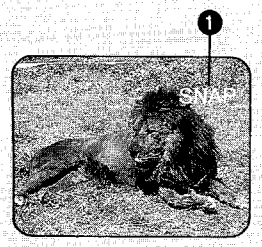
- If the Shutter Speed Select Button is pressed to change the shutter speed while the Movie Camera is in the image stabilizer mode, the shutter speed will remain at this setting when the image stabilizer mode is cancelled.

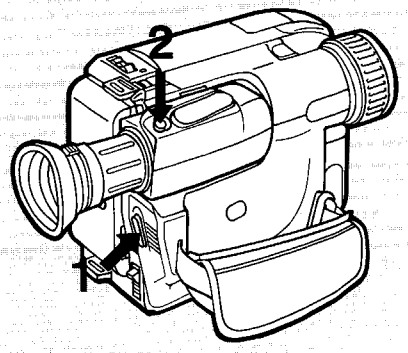
■ **Shooting with a tripod...**

- When shooting with a tripod, do not use the image stabilizer function.

How to Take a Snap Shot

Using the digital shooting function





- Simply by pressing the Snapshot Button, a still picture can be recorded for approx. 5 seconds.
  Since anyone can use this Movie Camera with the same ease as a still camera, it's easy to ask somebody to take your picture on video by pressing the Snapshot Button. This makes it even easier for you to get into your own movies.

1 **Press the Operation Switch and Slide it to "CAMERA".**

2 **Press the Snapshot Button.**

- The "SNAP" Indication ❶ is indicated in the Viewfinder during snapshot shooting.
- The still picture will be recorded for approx. 5 seconds and the Movie Camera will then **switch back to the shooting pause mode.**

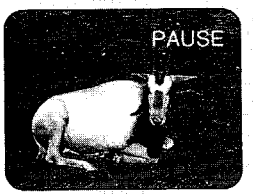
Hints for shooting snapshot pictures

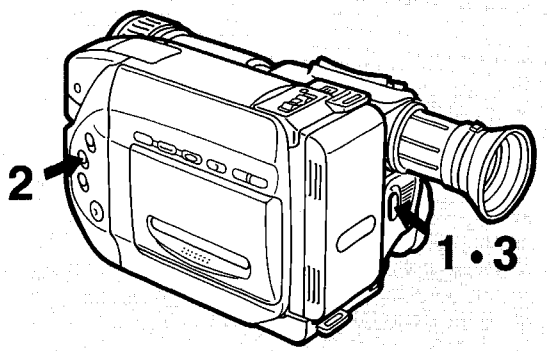
By combining this function with the High Speed Shutter, it is possible to shoot still pictures of fast actions for motion analysis.

- To prevent picture distortion, do not move or shake the Movie Camera during snapshot shooting.
- Since the still picture is recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.
- When the Snapshot Recording function is used repeatedly, wait at least 2 to 3 seconds before pressing the Snapshot Button again.

How to Shoot a Still Picture

Using the digital shooting function





Still picture recording of any desired duration

1 **Press the Operation Switch and Slide it to "CAMERA".**

2 **Press the Digital Effect Button.**
- The image in the Viewfinder stands still.

3 **Press the Start/Stop Button.**
- The still picture in the Viewfinder will be recorded.

■ To cancel this function...

Press the Digital Effect Button three times until normal movement in the Viewfinder is observed.

Hints for shooting still pictures

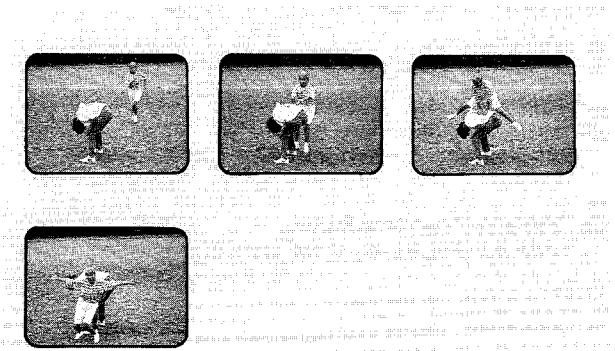
By pressing the Digital Effect Button repeatedly, the mode can be changed in the following order:

NORMAL → STILL → STROBE → MIRROR

- To prevent picture distortion, do not move or shake the Movie Camera during still picture shooting.
- Since the still picture is recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.

How to Shoot with the Strobe Effect

Using the digital shooting function



For continuously recording 6 still images per second.

1 **Press the Operation Switch and slide it to "CAMERA".**

2 **Press the Digital Effect Button twice.**
- The picture in the Viewfinder will also have a strobe effect.

3 **Press the Start/Stop Button.**
- Continuous shooting with strobe effect is now possible.

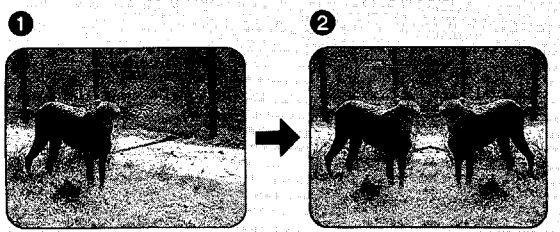
■ To cancel this function...
Press the Digital Effect Button twice until normal movement in the Viewfinder is observed.

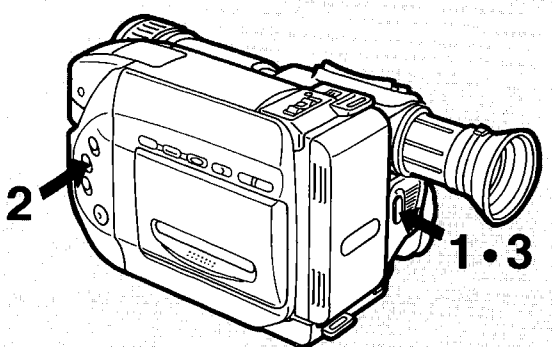
Hints for shooting pictures with strobe effect
By combining the strobe function with the High Speed Shutter, the strobe effect can be increased. (For outdoor shooting, the 1/250-second shutter speed is recommended.)
(See P.48)

- When shooting under fluorescent lamps, the brightness of the pictures may fluctuate.
- Since the strobe pictures are recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.

How to Shoot with the Mirror Effect

Using the digital shooting function





When recording a moving picture in the mirror mode, the right half of the picture is a mirror image of the left half ❷.

1 **Press the Operation Switch and slide it to "CAMERA".**

2 **Press the Digital Effect Button three times.**

- The right half of the picture ❶ in the Viewfinder is now a mirror image of the left half.

3 **Press the Start/Stop Button to start shooting.**

- The mirror image is now being recorded.

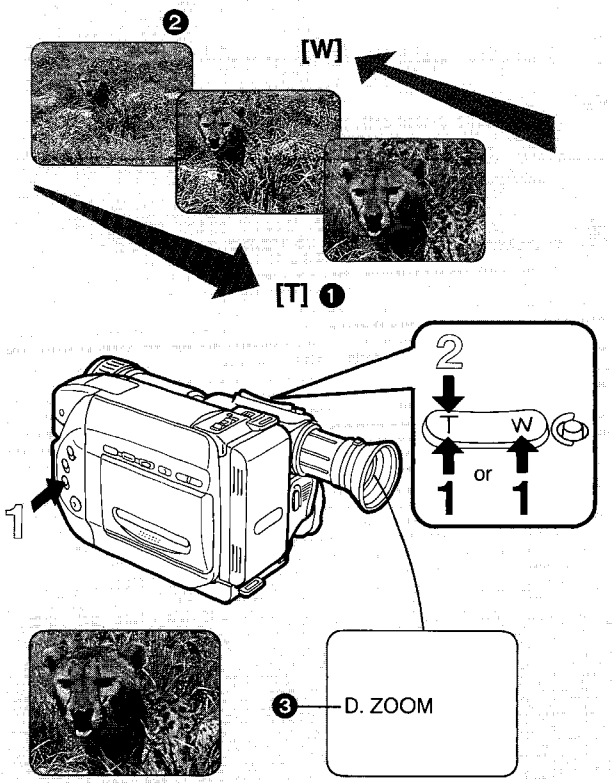
■ To cancel this function...

Press the Digital Effect Button once until normal movement in the Viewfinder is observed.

- Since the picture is recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.

How to Shoot with the Zoom

Using the power zoom or digital zoom function



■ **How to zoom In ❶, or out ❷**

(Using the power zoom function)

To make your zoom shots more impressive and achieve exactly the desired effect, do it like the professionals: before actually shooting, make a trial run of the zooming.

1 Keep the [T] Zoom Button pressed for telephoto (subject appears closer ❶) and the [W] Zoom Button for wide angle (subject appears further away ❷).

(Using the digital zoom function)

With the digital zoom function, it is possible to zoom in on a subject by combination of the [T] Zoom Button and Digital Zoom Button to enlarge it by up to 12 times.

1 **Press the Digital Zoom Button.**
- When the digital zoom is activated, the "D. ZOOM" Indication ❸ appears in the Viewfinder.

2 **Press the [T] Zoom Button.**

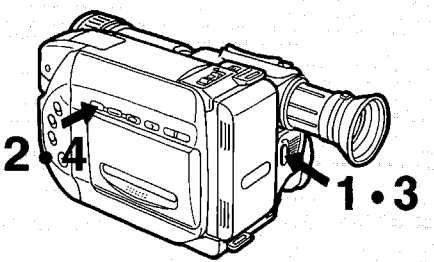
■ **To cancel this function...**

Press the Digital Zoom Button.

- With the digital zoom off, the zoom range is limited to ×8.
- When the digital zoom is activated, the picture is magnified electronically increasing the zoom range to ×12.
- The digital zoom will slightly decrease the picture resolution of detail.
- When zooming in on the subject all the way to the maximum tele position, slight after-image distortion may occur.
- When shooting under very bright conditions, the after-image can be eliminated by selecting a shutter speed of 1/120 or 1/250 second.

How to Shoot Using the Fade Function

Using the fade in and fade out function



■ **How to fade in ❶**

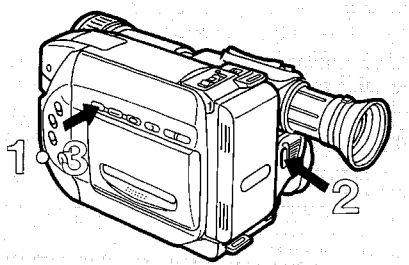
Fading in from black is very effective at the beginning of a movie and for soft changes between scenes.

1 **Press the Start/Stop Button to pause the shooting.**
(Shooting pause mode)

2 **Keep the Fade Button pressed.**

3 **After the picture has disappeared in the Viewfinder, press the Start/Stop Button to start the shooting.**

4 **After about 3 seconds, release your finger from the Fade Button.**
• The picture appears gradually.



■ **How to fade out ❷**

Fading out to black is convenient at the end of a scene to create a soft ending.

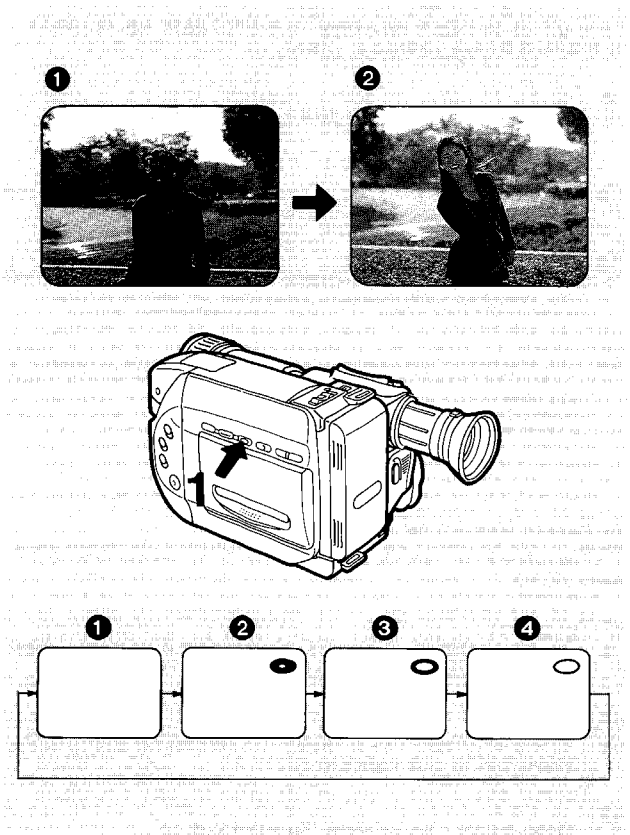
1 **During shooting, when you want to end the scene, press the Fade Button and keep it pressed.**

2 **After the picture has disappeared, press the Start/Stop Button to stop the shooting.**

3 **Release your finger from the Fade Button.**

How to Shoot a Backlit Scene

Using the backlight compensation function



This function makes it possible to brighten up the subject when shooting a backlit scene, e.g. people outdoors with the sun behind them, or a person indoors in front of a window.

1 **Press the Backlight Button to select the degree of the backlight compensation according to the backlight conditions.**

- The "◒" Indication appears ❷ in the Viewfinder.

By pressing the Backlight Button repeatedly, the degree of the backlight compensation can be varied.

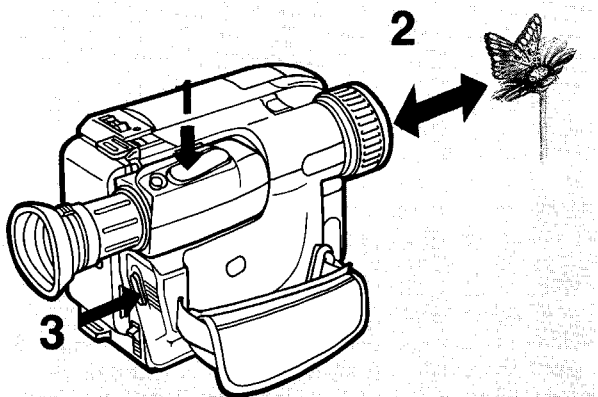
❶ No backlight compensation
↓
❷ Low backlight compensation
↓
❸ Medium backlight compensation
↓
❹ High backlight compensation

Cautions for shooting backlit subjects:

- The sky may become too bright or overexposed.
- In case of extremely strong backlight, it may not be possible to brighten up the subject sufficiently.
- When shooting with the sun striking the subject at an angle, star-shaped light reflections may be recorded in the picture.

How to Shoot Using the Macro Function

Using the macro close-up function



The macro close-up function makes it possible to shoot very small subjects, photos, printed matter, insects and many other things.

1 **Keep the [W] Zoom Button pressed to zoom to the maximum wide-angle position.**

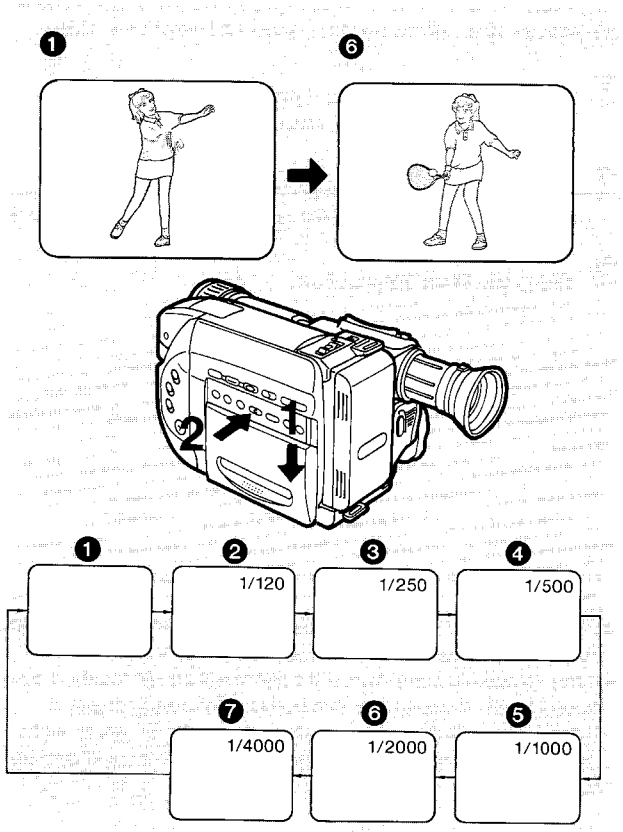
2 **Approach the subject to the desired distance.**
- The focus will be adjusted automatically (auto focus mode).

3 **Press the Start/Stop Button.**
- The shooting starts.

Hints for shooting with the macro close-up function
- To get more or less of the subject into the picture, change the distance between the lens and the subject; do not use the Zoom Button.
- As the depth of field is very small in macro shooting, even slight camera movements can cause the subject to be out of focus. Therefore, it is recommended to use a tripod (optional).
- When shooting pictures in a photo album or a similar situation with insufficient lighting, use a Video DC Light (optional). (See P.79)
- When the zoom lens is in its maximum tele position, the minimum shooting distance between lens and subject is 1 m.
- In macro close-up shooting, the subject can be approached down to a minimum distance of 5 mm between lens and subject. It is recommended to use the auto focus mode. However, with a stable camera position (tripod, etc.), the manual focus mode can also be used.

How to Shoot Fast Moving Subjects

Using the high speed shutter function



A range of different high shutter speeds makes it possible to shoot scenes with fast movements. When scenes recorded with a high shutter speed are later played back on a video tape recorder equipped with super still and super fine slow motion functions, still and slow motion pictures with very sharp contours and brilliant details can be obtained.

1 **Slide down the Operation Cover.**

2 **Press the Shutter Speed Select Button repeatedly to select the desired shutter speed.**

- The shutter speeds change in the following sequence.

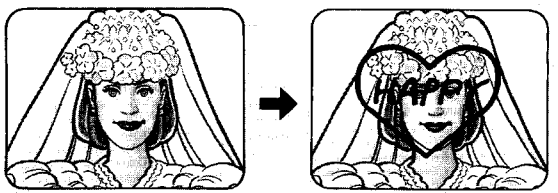
❶ 1/50 (No Indication) Normal → ❷ 1/120 → ❸ 1/250 → ❹ 1/500 → ❺ 1/1000 → ❻ 1/2000 → ❼ 1/4000 → ❶

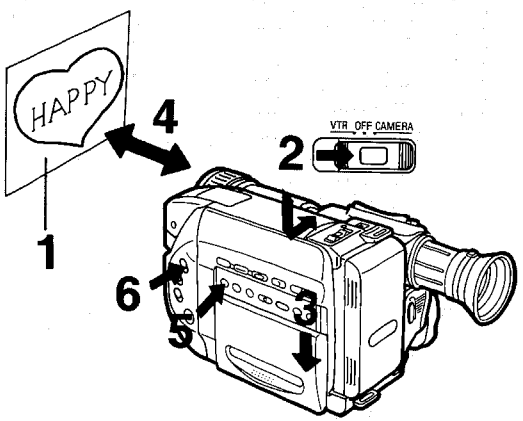
Conditions for shooting with the high speed shutter

- The subject must be brightly lit, with little shade, under sunlight or other strong illumination.
- When shooting under fluorescent lamps, the picture will be adversely influenced by flickering.
- When the picture is played back in the normal playback mode, the picture movement may not be as smooth as normally.
- The playback picture will be slightly darker than the picture recorded without using the high speed shutter function.

How to Memorize a Title

Using the digital title memory function





- The digital title memory function makes it possible to input a title into memory, and to recall it later during shooting at the press of a button and superimpose it onto the normal moving picture.
- This operation can be performed while the Movie Camera is in the shooting pause or stop mode.

1 **Prepare a title that has strong contrast, e.g. title written with black felt pen on white paper, printed title, street sign, calendar.**

2 **Press the Operation Switch and slide it to "CAMERA".**

3 **Slide down the Operation Cover.**

4 **Point the Movie Camera at the title and adjust the focus. For small titles, use the macro close-up function. (P.47)**

- The title should be in the centre of the Viewfinder screen as a part at the top and bottom edge of the title image will be cut off when it is superimposed during shooting.

5 **Press the Memory Button for at least half a second to memorize the title.**

6 **Press the Title Button to make the title disappear from the Viewfinder.**

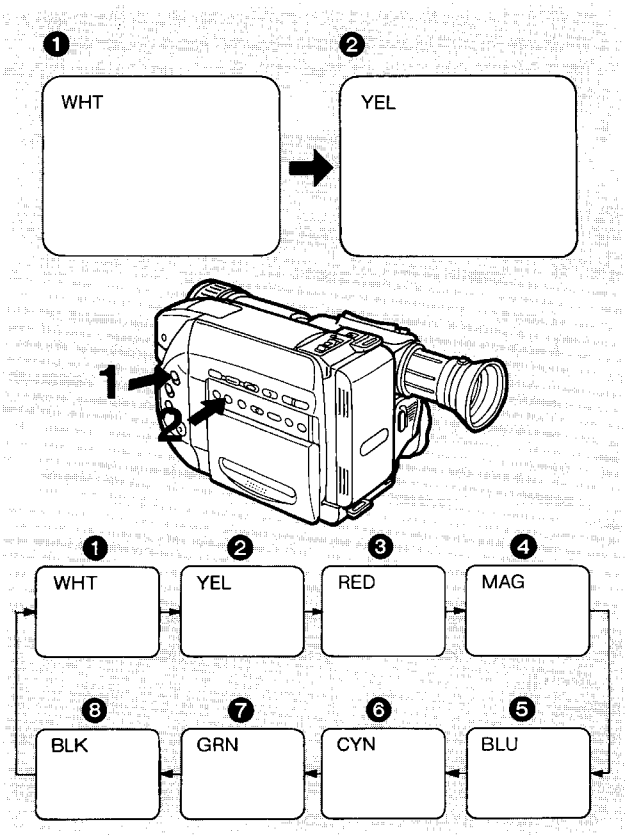
- Pressing this button repeatedly will make the title appear→disappear→appear in the Viewfinder.

■ **To superimpose the memorized title during shooting... (P.52)**

Notes:

- The title remains in the memory until a new title is stored [or until the button type battery (back up) is exhausted].
- If the Title Button is pressed by mistake during shooting, the title will be superimposed and recorded.

How to Select the Title Colour

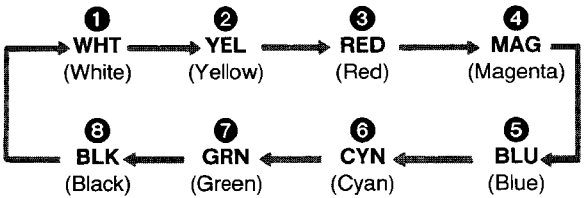


1 **Press the Title Button.**

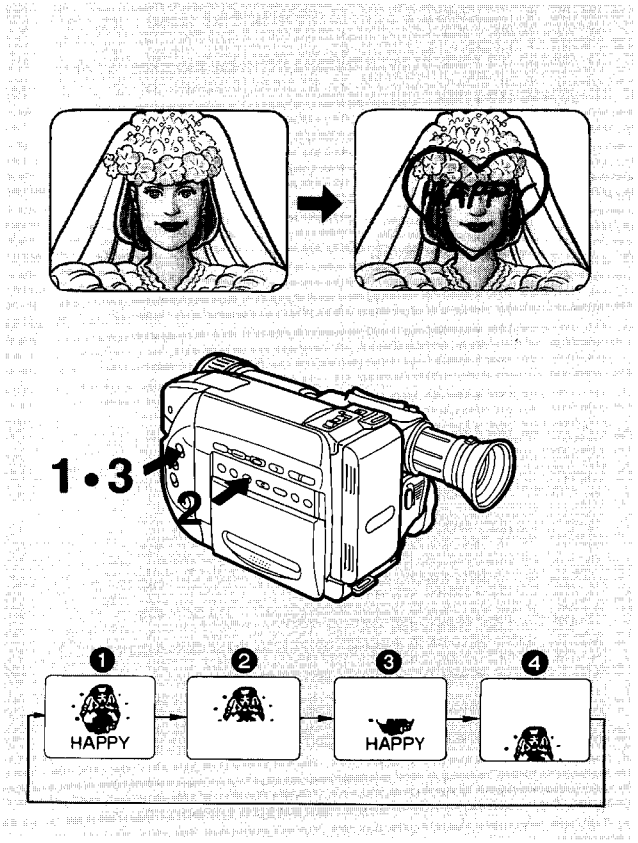
- The memorized title appears in the Viewfinder.

2 **Press the Colour Button repeatedly to select the desired colour.**

- By pressing this button repeatedly, the colour of the title can be changed in the following order. (This function can also be used while the title is already being recorded.)



How to Select the Title Mode



1 **Press the Title Button.**
- The memorized title appears in the Viewfinder.

2 **Press the Title Mode Button repeatedly to select the title mode.**

- By repeatedly pressing the Title Mode Button, the way in which the title is superimposed onto the picture being recorded can be changed in the following order. (This function can also be used while the title is already being recorded.)

❶ NORMAL → ❷ WIPE ↓ → ❸ WIPE ↑ → ❹ SCROL

❶ The title will appear immediately.

❷ The title will appear gradually from the top.

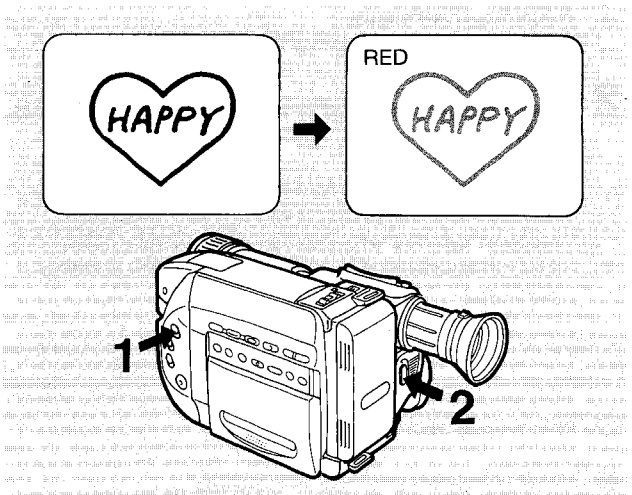
❸ The title will appear gradually from the bottom.

❹ The title will scroll in from the bottom.

3 **Press the Title Button again to make the title disappear from the Viewfinder.**

- To confirm, how the title will appear later during shooting, press the Title Button again. It will now appear in the selected mode, and the selected colour will also be indicated in the Viewfinder.

How to Record the Memorized Title during Shooting



■ **Superimposing a title in the normal title mode at the beginning of a shot.**

1 **Press the Title Button to make the title appear in the Viewfinder.**

- Confirm by the indications in the Viewfinder that the selected colour and the title mode are as desired. At this time, it is still possible to change the colour and title mode.

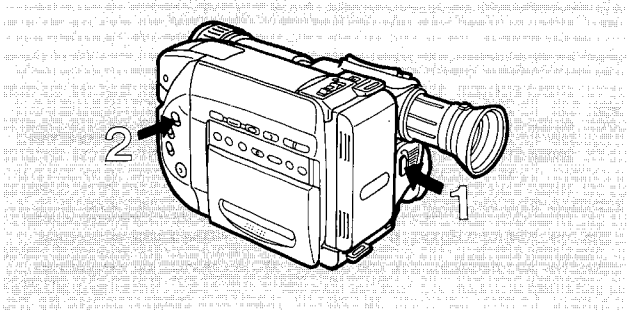
2 **Press the Start/Stop Button to start shooting.**

■ **Superimposing a title in the wipe or scrol title mode at the beginning of a shot.**

- Allow approx. 2 seconds for the recording to commence, before pressing the Title Button. The wipe or scroll title will appear in the Viewfinder and it will be recorded in the same way.

■ **To stop the superimposition of the title, while continuing to shoot the scene...**

Press the Title Button again.



■ **Superimposing a title during shooting**

1 **Press the Start/Stop Button to start shooting.**

2 **At the point where you want to insert the title, press the Title Button. (The title appears in the Viewfinder in the selected title mode and selected colour. At the same time, it is superimposed onto the scene that is being shot.)**

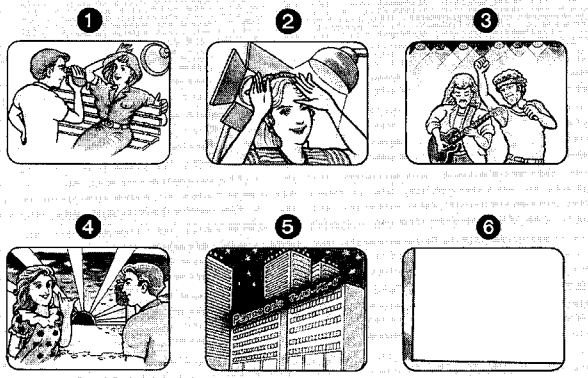
■ **To stop the superimposition of the title**

Press the Title Button again.

- It is possible to change the title mode by pressing the Title Mode Button even when the title is not displayed in the Viewfinder.

White Balance

Using the automatic white adjustment function



To human eyes, white subjects appear as white even under different lighting conditions. A Movie Camera, however, would give these white subjects, depending on the colour of the light source, a reddish or bluish tint. To attain recordings with natural colours, it is necessary to adjust the sensor in the camera to the existing colour of the light. This adjustment is called white balance adjustment. This camera offers two modes for this adjustment: automatic and manual white balance adjustment.
If the Movie Camera is moved from outdoors to indoors during shooting, the picture will initially take on a slightly reddish cast but it will gradually regain its natural colours.
In the following shooting situations, the automatic white balance adjustment may not provide satisfactory results; use the manual white balance adjustment mode instead.

1. When shooting under mercury-vapor, natrium or some types of fluorescent lamps.
2. When intense lighting is used, e.g. from a halogen lamp, or when the colour temperature of the light source is low.
3. When shooting under lighting conditions which change suddenly.
4. When shooting outdoors at sunrise or sunset.
5. When shooting under firework illumination at night outdoors.

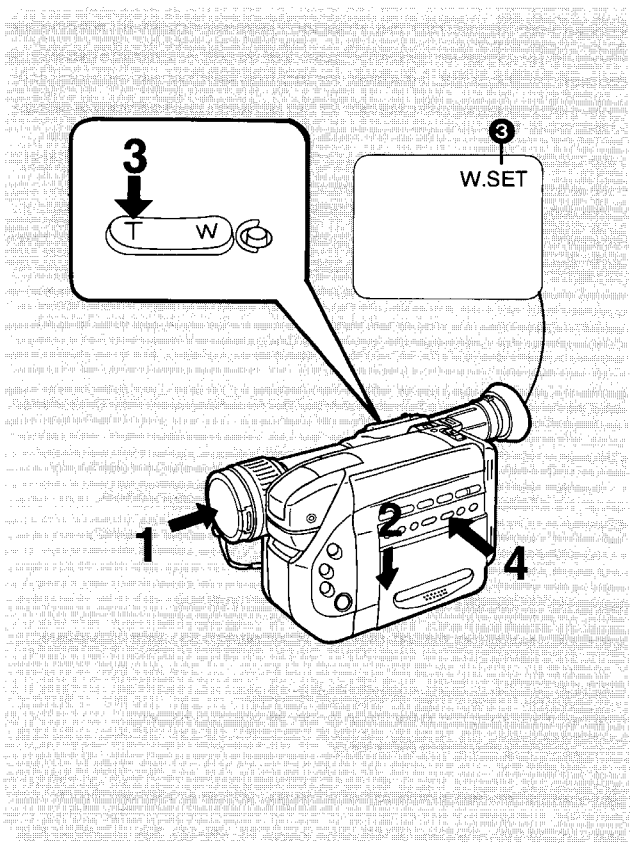
- When shooting under weak illumination.
- When using a grey filter (ND) or other special filters.
- When using a conversion lens.

6. When shooting a subject of a single colour or background.

For further information, a table on page 75 shows the relationship between light levels and colour temperature.

Manual White Balance Adjustment

Using the manual white adjustment function



(For shooting under a single light source)

- If there is only one light source.

1 **Attach the Lens Cap to the Lens.**

2 **Slide down the Operation Cover.**

3 **Keep the [T] Zoom Button pressed until the screen in the Viewfinder becomes completely white.**

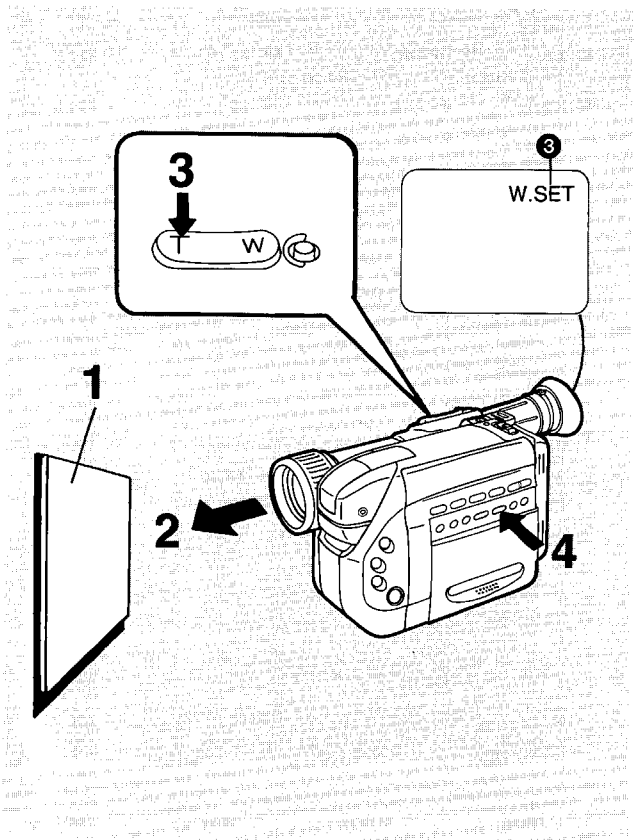
4 **Keep the White Balance Adjustment Button pressed for more than 1 second.**
The following indications in the Viewfinder inform about the state of the adjustment:

❶ "WHITE" flashes slowly.... Not adjusted

❷ "WHITE" flashes rapidly .. During adjustment

❸ "W.SET" is lit ..... Adjustment is finished.
The Movie Camera is now ready for shooting.

Using the manual white adjustment function



(For shooting under several light sources or if the illumination is weak)

- If there are several light sources or if the illumination is weak (indoor, etc.).

1 **Prepare some white paper or some other purely white subject.**

2 **Remove the Lens Cap and point the Movie Camera at white subject.**

3 **Keep the [T] Zoom Button pressed until the screen in the Viewfinder becomes completely white.**

4 **Keep the White Balance Adjustment Button pressed for more than 1 second.**
The following indications in the Viewfinder inform about the state of the adjustment:

❶ "WHITE" flashes slowly. . . . Not adjusted

❷ "WHITE" flashes rapidly . . During adjustment

❸ "W.SET" is lit . . . . . Adjustment is finished.
The Movie Camera is now ready for shooting.

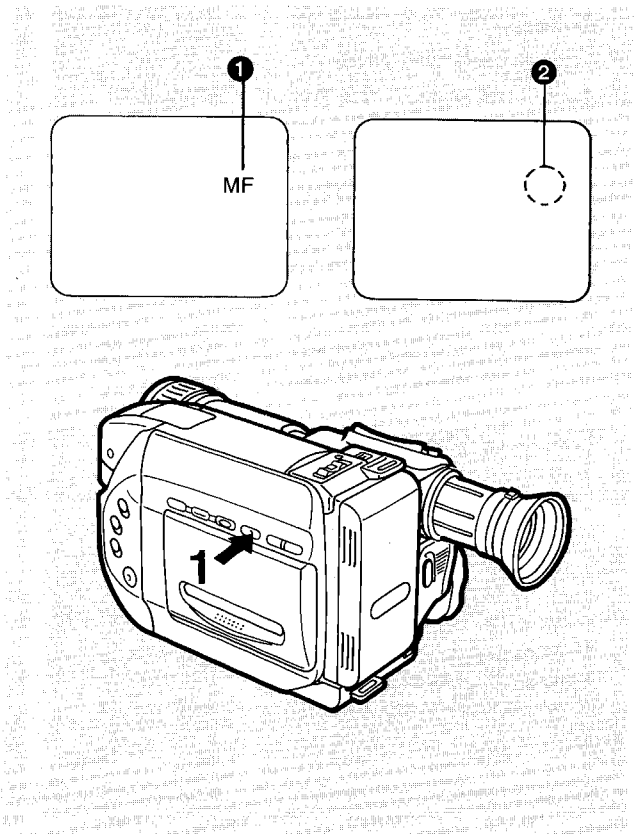
■ **To change back to the automatic white balance adjustment mode...**

Press the White Balance Adjustment Button quickly. The W.SET Indication in the Viewfinder will disappear.

■ **Automatic recall of the previous white balance setting**

- After setting the Operation Switch to "OFF" and later to "CAMERA" again, the "WHITE" Indication will flash slowly, however, the last previous white balance setting is still maintained.
  However, to ensure the best possible colour reproduction, adjust the white balance again, as explained on pages 54, 55.
  The last previous white balance setting is also maintained after pressing the Rewind/Review Button to confirm the end of the previously recorded scene.
  But after removing the Battery Pack (or disconnecting the AC Adaptor from the Movie Camera) the last previous white balance setting will no longer be maintained.
- When moving the Movie Camera from indoor to outdoor or vice versa, be sure to adjust the white balance, as the colour of the light will have changed considerably.

Using the automatic focus function



This Movie Camera focuses automatically on almost all subjects.
(No operation is necessary.)

When the "MF" indication ❷ is not displayed in the Viewfinder, the Movie Camera is in the auto focus mode.
(MF: means Manual Focus)

- The focus will automatically be adjusted to the subject in the centre of the Viewfinder.

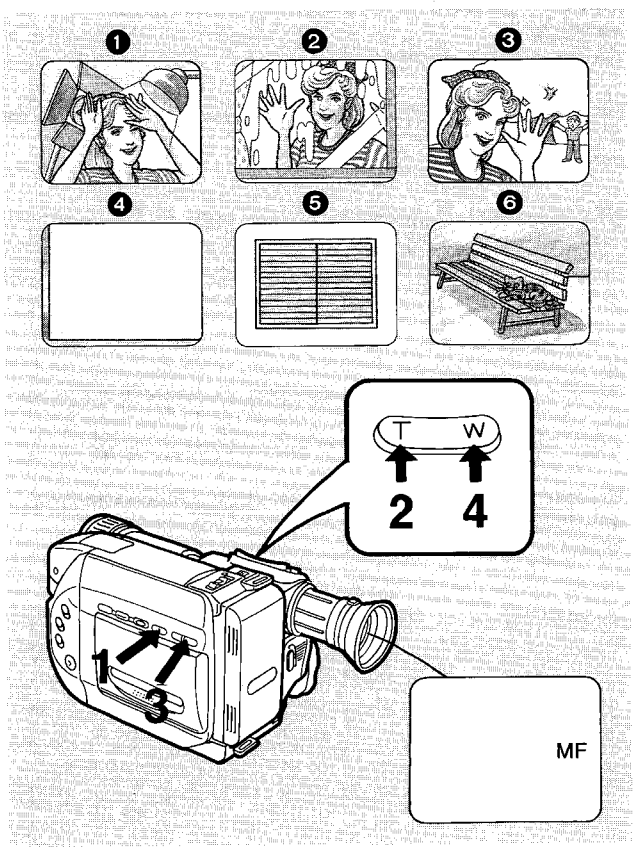
■ **When the "MF" indication is displayed in the Viewfinder ❶...**

1 Press the Focus Button to activate the auto focus mode.

- The "MF" Indication in the Viewfinder will disappear ❶.

The auto focus system will not provide stable and accurate focus adjustment if you are shooting in the situations listed on the following page.

Using the manual focus function



❶ Shiny surfaces. Subjects with backlighting or much light reflection.

❷ A subject behind dirty glass.

❸ A subject with a part of near the Movie Camera and another part far away from it.

❹ A flat surface, e.g. a white wall.

❺ A subject with horizontal stripes.

❻ An oblique subject.

- With the macro close-up function, special lenses or filters.
- A fast-moving subject.
- A subject with a dark surface.

■ **In these situations the manual focus should be used.**

- Perform the following operation steps:

1 **Press the Focus Button.**
- The "MF" Indication apperas in the Viewfinder.

2 **Press the [T] Zoom Button to zoom in on the subject to be focussed.**

3 **Press the [+] or [−] Button to adjust the focus.**

4 **Press the [W] Zoom Button to zoom back as desired.**

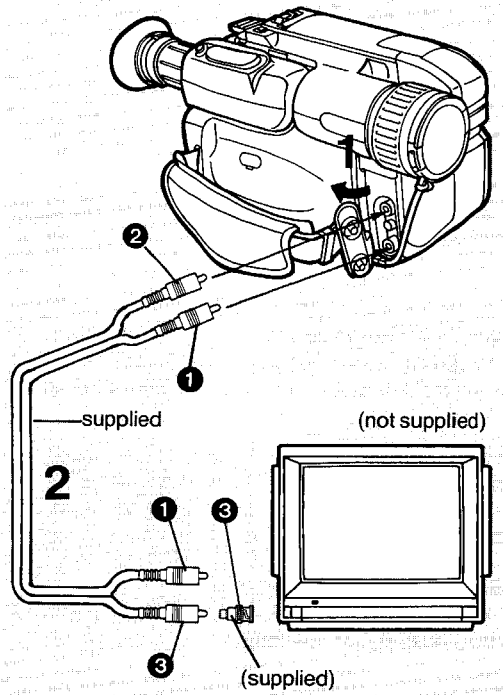
■ **To change back to the automatic focus mode... Press the Focus Button.**

- The "MF" indication disappears in the Viewfinder.

Note:
When using the manual focus mode, always adjust with the Zoom Lens in maximum tele position. This will ensure that focus remains sharp throughout the zoom range from the maximum tele to maximum wide-angle position.

Playback via a TV Set (Connections)

Using the supplied Audio/Video Cable



■ **Playback via a TV set with AV Input Socket**

•Turn off the power of the Movie Camera and TV set.

1 **Remove the Socket Cover.**

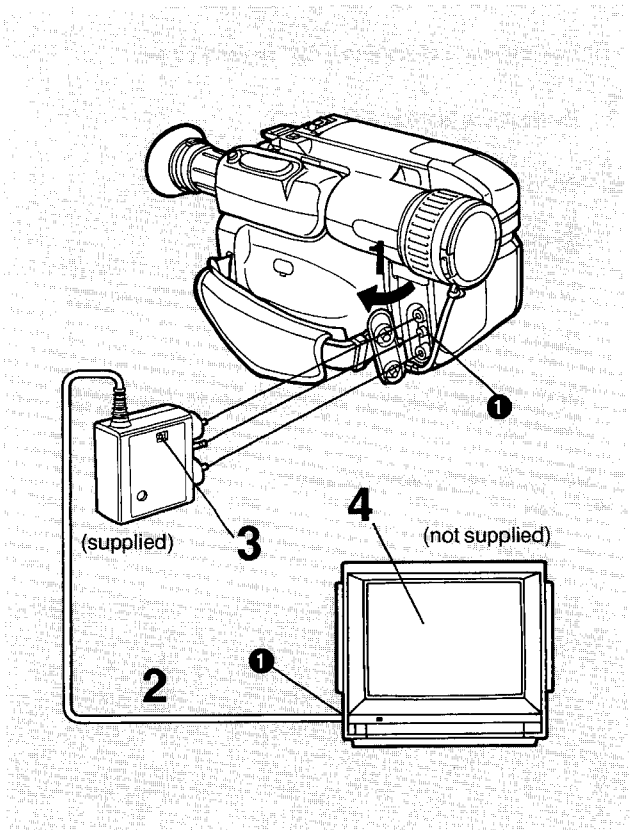
2 **Connect the Movie Camera to the TV set.**

Movie Camera		TV Set
Audio Output Socket ❶	⟷	Audio Input Socket ❶
Video Output Socket ❷ ↓ BNC PHONO Adaptor Plug ❸	⟷	Video Input Socket ❸

■ **Activate the playback operation**

(See P.62.)

Using the supplied RF Adaptor



■ **Playback via the TV set without AV Socket**

•Turn off the power of the Movie Camera and TV set.

1 **Remove the Socket Cover.**

2 **Connect the Movie Camera to the TV set.**

Movie Camera			TV Set
VIDEO OUT ❶ RF DC OUT AUDIO OUT	⟷	RF adaptor	⟷ ❶ Aerial Input

3 **Set the PAL System Selector to the correct position.**
- •Set to the [I] position for UK.
- •Set to the [G] position for continental Europe.

If set to the wrong position, the sound will be muted.

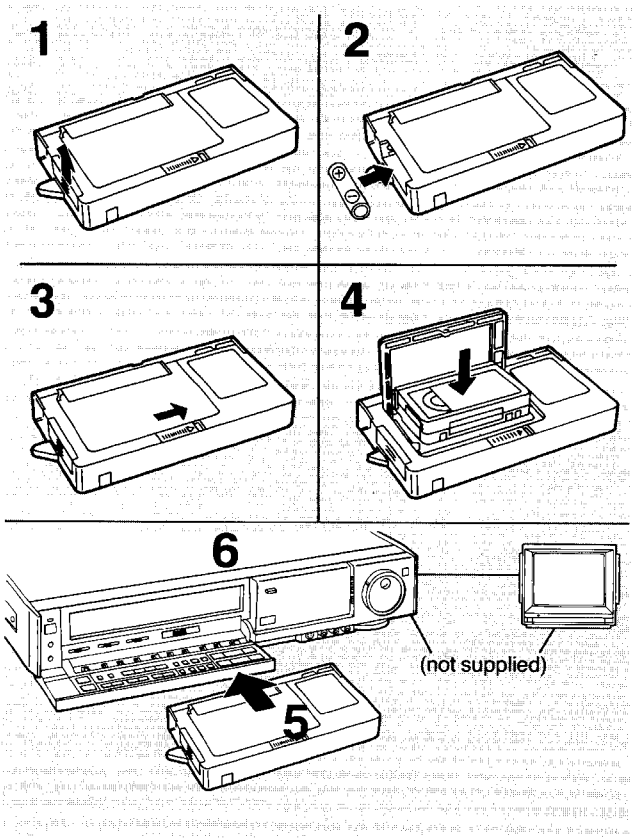
4 **Select an unused TV programme position (channel)**
- •Follow the tuning procedure outlined in your TV's instructions booklet for re-tuning your TV set to the UHF transmission channel 36. The camera picture will now appear on the TV screen.
- •If in doubt, consult your local dealer.

■ **Activate the playback operation.**

(See P.62.)

Playback on a Video Tape Recorder (VTR)

Using the supplied Cassette Adaptor



1 **Push the Cover upward and remove the Cover.**

2 **Insert the supplied Battery and attach the Cover.**

3 **Slide the Open Button.**

4 **Insert the recorded Compact Video Cassette and close the Top Cover.**

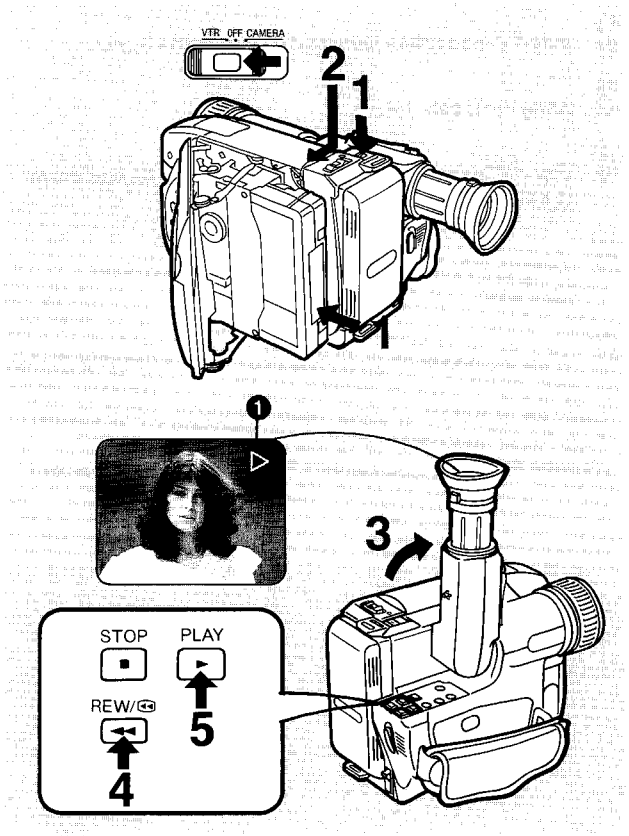
5 **Insert the Cassette Adaptor into your Video Tape Recorder.**

6 **Start the playback operation of the Video Tape Recorder.**

- It may be necessary to adjust the tracking control on the Video Tape Recorder for optimum picture quality. (See the Operating Instructions of your Video Tape Recorder.)

Playback

•The recorded tape can be played back in the Viewfinder or on a connected TV set.



■ **How to play back on the Viewfinder (playback from the beginning of the tape).**

1 **Press the Cassette Eject Button and insert the recorded cassette.**

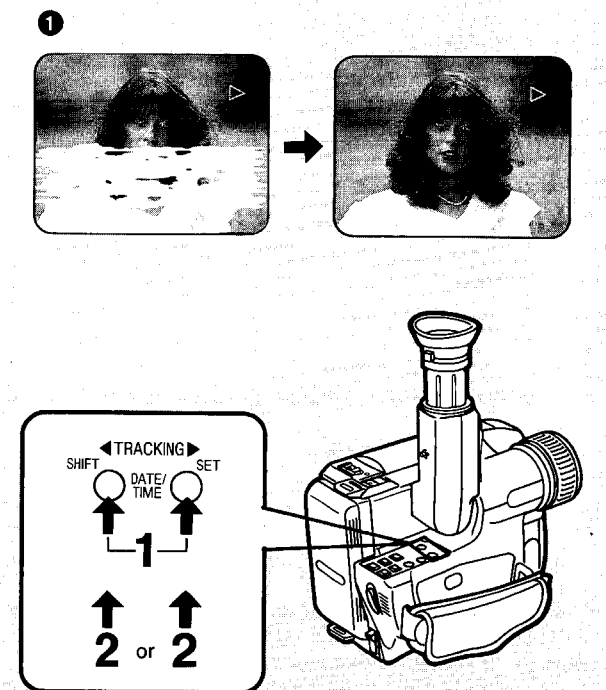
2 **Press the Operation Switch and slide it to "VTR".**

3 **Raise the Viewfinder.**

4 **Press the Rewind/Review Button.**
- The tape will stop automatically when it reaches its beginning.

5 **Press the Play Button.**
- The playback starts.
  The Play (▷) indication ❶ appears in the Viewfinder.
- The tape will be rewound automatically when it reached its end.

■ **To stop the playback...**
Press the Stop Button.



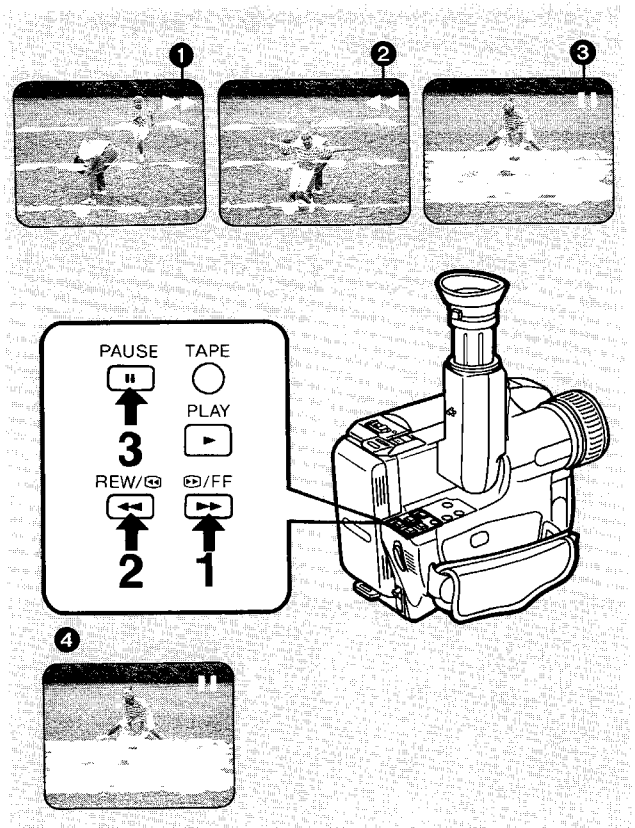
■ **How to adjust the tracking**

If the picture is distorted by noise bars ❶ during playback, the tracking needs to be adjusted.

1 **Press both the [◀ Tracking] and [Tracking ▶] Buttons simultaneously.**

2 **Eliminate any noise bars by adjusting the tracking with the [◀ Tracking] or [Tracking ▶] Button.**

- When playing back a tape which has been recorded on another camera, it may not be possible to completely eliminate these noise bars.



■ **How to use the cue, review and still (Pause ❚❚) playback functions during normal playback**

■ **For cue playback...**

1 **Keep the Fast Forward/Cue Button pressed.**

- The Fast Forward/Cue Mode (▶▶) Indication ❶ appears in the Viewfinder.

■ **For review playback...**

2 **Keep the Rewind/Review Button pressed.**

- The Rewind/Review Mode (◀◀) Indication ❷ appears in the Viewfinder.

■ **For still playback...**

3 **Press the Pause Button.**

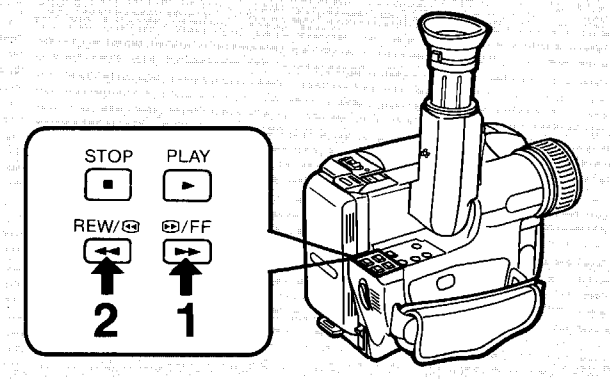
- The Still Mode (❚❚) Indication ❸ appears in the Viewfinder.

To resume normal playback...

Press this button again.

If the Movie Camera is left in this mode for about 6 minutes, it will switch to the stop mode, to protect the tape and video heads.

- The sound will be played back only during normal playback (if connected to a TV set).
- In the cue, review and still playback of SP/LP modes, horizontal noise bars appear in the picture ❹.
  However, this is not an indication of a malfunction.
- In the cue, review and still playback of SP/LP modes, the picture may become black and white or distorted. This is not an indication of a malfunction.



■ **How to rewind or fast forward the tape**

With the Movie Camera in the stop mode:

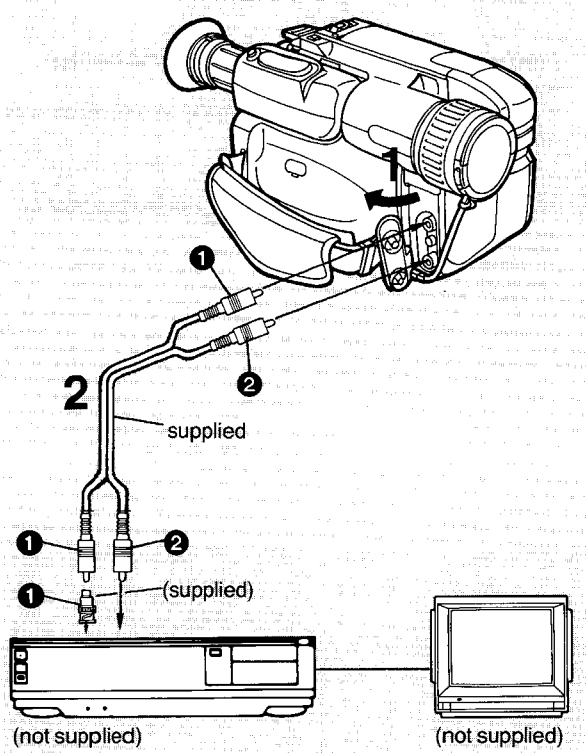
1 **Press the Fast Forward/Cue Button to wind the tape forward at high speed.**

- The tape will be rewound automatically when it reaches its end.

2 **Press the Rewind/Review Button to rewind the tape at high speed.**

- The tape will stop automatically when it reaches its beginning.

Copying (Dubbing)



■ **Connections**

1 **Remove the Socket Cover.**

2 **Connect the Movie Camera to the Video Tape Recorder.**

Movie Camera		Video Tape Recorder
Video Output Socket ❶	⟷	Video Input Socket ❶
↓ BNC/PHONO Adaptor Plug ❶ (If necessary)		
Audio Output Socket ❷	⟷	Audio Input Socket ❷

■ **Operations**

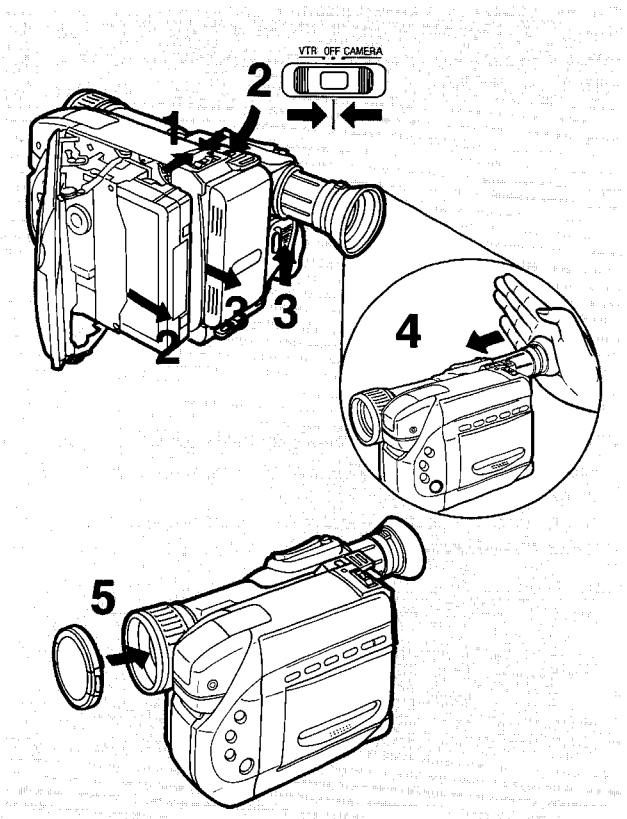
Movie Camera

1. Insert a recorded video cassette into the Movie Camera.
2. Press the Play Button. (and if necessary press the Fast Forward/Cue and Rewind Review Button to locate the scene from where the dubbing is start)
3. Press the Pause Button at where the dubbing is to start.
6. Press the Pause Button to start playback.
8. Locate on the Movie Camera the beginning of the next scene to be dubbed, and press the Pause Button at that position.

Video Tape Recorder

4. Insert a video cassette with erasure prevention tab intact into the Video Tape Recorder. If your Video Tape Recorder is equipped with SP/LP, it would advisable to use SP mode.
5. Press the Record Button to start recording.
7. Press the Pause/Still Button at the exact position where the recording is to end.
   - The Video Tape Recorder is now in the recording pause mode.
9. Press the Pause/Still Button again to resume recording.

- Repeat the operation steps 6 to 9 for each additional scene to be dubbed.



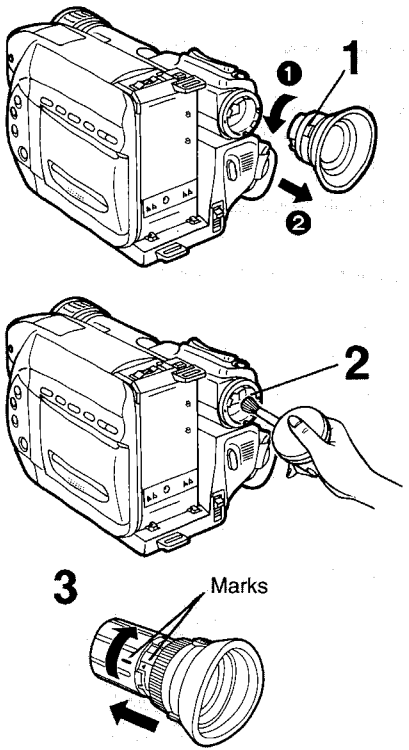
1 **Press the Operation Switch and slide it to "OFF".**

2 **Press the Cassette Eject Button and remove the cassette.**

3 **Push the Battery Eject Lever upward and remove the battery pack.**

4 **Retract the Viewfinder.**

5 **Attach the Lens Cap to the Lens.**



■ **How to clean the Movie Camera**

Remove dust and dirt by wiping it with a soft cloth. For persistent stains, use a cloth moistened with water and mild detergent. Then wipe with a dry cloth.

■ **How to clean the Viewfinder**

1 **Take off the Eyecup by turning it counterclockwise.**

2 **Remove dust with a blower brush.**

3 **Align the two marks, insert the Eyecup and turn it clockwise.**

■ **Cautions for Cleaning**

- Do not use benzine, thinner or other chemicals for cleaning, because they could change the colour and damage the surface of the camera body.
- When using a chemically treated cloth for cleaning, carefully follow the instructions for its use.

Cautions

Please read these cautions before operating the Movie Camera and its accessories.

Video Head Clogging

The video heads are the means by which the Movie Camera places picture signals on the tape during shooting, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound of which is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such symptoms occur, have the Movie Camera checked by qualified service personnel.
This Movie Camera is equipped with head clogging detection function. When the heads are clogged, the ⊗ Indication in the viewfinder will appear. As the accumulation of dirt on the heads may be dislodged by the movement of the tape, it is possible that this indication sometimes appears, but may not reappear on the next shooting starts.
The head clogging detection function will be activated when the shooting is started from the recording pause mode. However, it will not be activated when shooting immediately after replacing the cassette and after playing back some part of the tape.

Condensation Inside the Movie Camera

Condensation (dew) forms when warm air comes in contact with a cold object, for example on a window in a heated room in winter. Condensation may also form in the Movie Camera and damage the tape and the video heads, if:

- The Movie Camera is in a room where the heater has just been turned on.
- The Movie Camera is in a room with steam or high humidity.
- The Movie Camera is brought from cold surroundings into a well-heated room.
- The Movie Camera is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

■ **When condensation has formed inside the Movie Camera, the "DEW" Indication in the viewfinder will flash and a few seconds later, the Movie Camera will turn itself off to protect the tape and the video heads.**
After a while, turn the Movie Camera on again and make sure that the "DEW" Indication is not displayed any more. Then, wait about 1 hour before operating the Movie Camera again. Depending on the surrounding conditions, it may take several hours before the Movie Camera can be used again.

■ **As condensation forms gradually, it may take about 10–15 minutes before the Movie Camera turns itself off after a change of working environment.**

- In an extremely cold place, condensation may freeze and turn into frost. In this case, it may take quite some time for the frost to melt, turn into dew and evaporate.
- When you bring the Movie Camera from a very cold place, e.g. the ski slopes, into a heated room, keep it in a tightly closed plastic bag or similar to prevent condensation from forming inside the Movie Camera.

Cautions for the Movie Camera

This Movie Camera contains highly sensitive electronic components. Use it with the same care and common sense that you would use for any other expensive electronic equipment. Avoid especially the following environments and treatment:

- Strong shocks and vibration.
- Strong light (the heat from it could cause deformation and other damage).
- Temperatures above 40°C (direct sunlight, closed car, etc.) and below 0°C.
- Relative humidity of more than 80% and less than 20%.
- Places with much dust, steam and oily smoke.
- Very close to a TV set.
- Near magnets or magnetized objects (fluorescent lamps, motors, electric clocks, battery-operated toys, etc.)
- Strong electric fields such as near TV or radio antennas.
- If any object is dropped into it or if any liquid is spilled into it, consult qualified service personnel. Operating it with some foreign matter inside may cause fire or electric shock.
- Never touch any internal parts of the Movie Camera and never try to disassemble it. For internal inspection, adjustment or repairs, consult qualified personnel.
- Always cover the lens with the lens cap after shooting.
- When the Movie Camera is not going to be used for a longer period, remove the cassette and the battery pack, and turn the Movie Camera off with the Operation Switch.
- Never use the Movie Camera with the cassette compartment facing down, because this could cause uneven winding of the tape and malfunction.

Cautions for the Battery Pack

The function of the battery pack is based on a chemical reaction. Use it according to its following special characteristics:

- Use only the supplied AC adaptor to charge the battery pack.
- Charge the Battery Pack within a temperature range of 10°C–35°C. If charged at lower temperatures, the chemical reaction cannot take place optimally, causing the performance of the Battery Pack to deteriorate. At higher temperatures, the Battery Pack cannot be charged completely.
- Charge the battery pack shortly before using it (e.g. on the day before the planned use) because self-discharging may occur if it is left unused for a long period of time after charging.
- Do not recharge a battery pack that is already fully charged.
- During operation of the Movie Camera or during recharging, the battery pack may become warm, however, this does not pose any problem.
- The service life of a battery pack has its limits. If the operation time of a battery pack, in spite of normal recharging, becomes so short that its normal use for shooting is no longer possible, it should be replaced with a new one.
- When not using the battery pack, remove it from the Movie Camera or the AC adaptor.
- Do not throw the battery pack into a fire.
- Do not short-circuit the poles of the connector.
- Do not disassemble or reconstruct the battery pack.
- Never subject the battery pack to strong shocks or drop it.
- Store the battery pack in cool and dry place. If it is exposed to high temperatures for a long time, the self-discharging process will be accelerated and the operation time will be shortened.

Cautions for the Button Type Battery

- Keep the Button Type Battery out of the reach of children. Should the Button Type Battery be swallowed, consult a doctor immediately.
- Do not recharge or heat the Button Type Battery and do not throw it into a fire.
- Do not hold the Button Type Battery with metallic tweezers, as a short-circuit may occur.

CAUTIONS FOR BATTERY REPLACEMENT

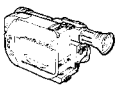
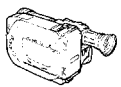
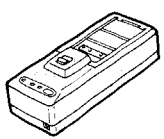
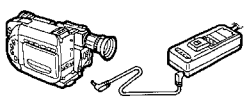
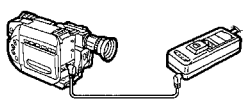
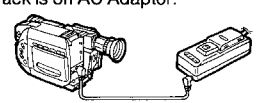
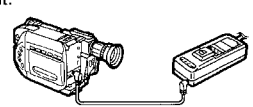
- The life of the battery is about one year. Inspect and if necessary replace the Battery once a year.
- Load the new battery with its polarities (+ and −) correctly aligned.
- Remove the spent battery immediately and dispose of it.
- Do not try to short-circuit, recharge or heat the battery and do not throw into a fire.

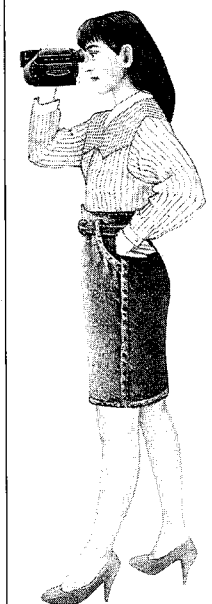
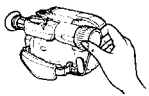
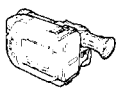
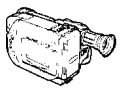
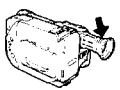
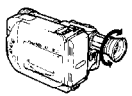
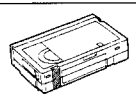
Cautions for the AC Adaptor

- Do not place heavy objects on the AC adaptor.
- When unplugging the mains cord or other connection cords, be sure to grasp the plug, not the cord.
- When listening to the radio while the AC adaptor is in operation, the radio reception may be distorted. In this case, move the AC adaptor further away from the radio.

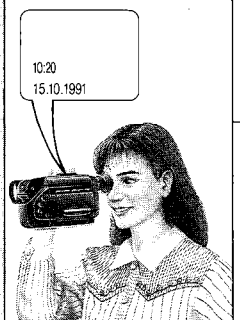
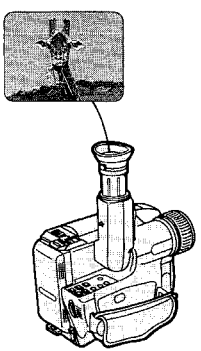
Cautions for the Cassette Adaptor

- Do not insert the cassette adaptor into a video tape recorder and take it out again without running the tape, because this could cause the tape to get loose and entangled.
- Be careful not to touch the tape directly when loading the cassette into the cassette adaptor. After use, take out the cassette from the cassette adaptor.
- Never insert the cassette adaptor into a video tape recorder without a compact cassette in it.

	Items	Symptom	Cause	Action	Reference pages
Power	Using Battery Pack	•Movie Camera does not turn on.	•Not attached. 	•Attach it correctly. 	18
			•Not charged.	•Charge it.	16
		•Movie Camera turns off soon.	•Exhausted.	•Use a fully charged one.	16
			•Shooting was paused for more than 6 minutes.	•Set the Operation Switch to "OFF" and then to "CAMERA" again.	34
	Using AC Adaptor 	•Movie Camera does not turn on.	•Not connected. 	•Connect correctly. 	19
			•Battery Pack is on AC Adaptor.  (It cannot do both simultaneously.)	•Remove it. 	19
	Using any power sources	•Movie Camera does not turn on.	•Operation Switch is set in "OFF" position.	•Set it to "CAMERA" or "VTR".	34
		•Movie Camera turns off soon.	•Dew has formed inside.	•Wait about several hours.	69

Items	Symptom	Cause	Action	Reference pages
Shooting 	●No picture in the Viewfinder.	●Operating Switch is in "OFF" position.	●Set it to "CAMERA".	34
		●Lens Cap is attached.	●Remove it. 	34
	●Indications in the Viewfinder are not clear.	●The Viewfinder is not extended. 	●Extend it approx. 3 cm. 	23
		●Eyepiece Corrector is not adjusted. 	●Adjust it. 	23
		●Lens is dirty.	●Clean it.	68
	●Shooting cannot be started.	●The tab of the inserted cassette is broken out.	●Cover the tab hold with adhesive tape. 	27
		●No cassette is inserted.	●Insert a cassette with intact erasure prevention tab.	34
		●Tape reached its end.	●Insert a new one.	82

Before requesting Service (cont'd)

	Items	Symptom	Cause	Action	Reference pages
Shooting		•Date and time cannot be recorded.	•Date and time are not set.	•Set the date and time.	21
		•Date and time are not displayed in the Viewfinder.	•Date/Time Button was not pressed.	•Press the Date/Time Button.	22
			•Button Type Battery is exhausted.	•Replace it with a new CR2032.	20
Playback (picture)		•No picture.	•Operation Switch is in the "OFF" position.	•Set it to "VTR".	62
			•Not connected or incorrectly connected.	•Connect correctly.	59 • 60
			•Wrong channel is selected on TV set.	•Select the correct channel.	59 • 60
		•Picture is not in colour.	•Not adjusted TV set.	•Adjust on TV set.	—
		•Picture is not in colour or distorted.	•Tracking is not adjusted.	•Adjust the tracking.	63
		•Picture contains noise bars.	•Cue, review or Still playback is activated.	•It is not a malfunction.	64

About the Colour Temperature and White Balance

The colour temperature of the light source is measured in Kelvin. The higher the kelvin value is, the more bluish the light is; the lower the value, the more reddish the light is. This is not directly related to the brightness.

The table below shows the relationship between natural light, artificial light and colour temperature.

Natural light	Colour temperature		Artificial light	White balance adjustment
•Blue sky	10,000°K			Bluish colour
•Slightly overcast sky	7,000°K ~8,000°K	8,000°K ~9,000°K	•TV screen	
•Cloudy sky (Rain)	6,000°K			
•Sunlight	5,000°K			
		4,800°K	•Fluorescent lamp (white)	Whitish colour
•1~2 hours after sunrise or before sunset	3,000°K ~4,200°K	2,500°K ~3,500°K	•Flourescent/lamp (not white) or studio lamp	
•Sunrise or sunset	2,000°K ~2,500°K	2,000°K ~2,800°K	•Halogen light bulb	
		2,000°K ~2,500°K	•Tungsten lamp	Reddish colour
		1,500°K ~2,000°K	•Candlelight	

Range in which the auto white balance is effective

Specifications

NV-S5B

Information for your safety

Power Source:	DC 6 V
Power Consumption:	Recording mode; 7.8 W (Battery Operation) Fast Forward Mode; 8.3 W (Battery Operation)
Video Recording System:	Rotary four heads, helical scanning system
Tape Speed:	SP; 23.39 mm/s LP; 11.7 mm/s
Tape Format:	VHS-C tape
Recording/Playback Time:	45 min. with NV-EC45E (SP) 90 min. with NV-EC45E (LP)
VIDEO	
Television System:	CCIR; 625 lines, 50 fields PAL colour signal
Modulation System:	Luminance; FM azimuth recording Colour signal; Converted subcarrier phase shift recording
Output Level:	VIDEO OUT (PHONO); 1.0 Vp-p, 75 ohm unbalanced
AUDIO	
Output Level:	AUDIO OUT (PHONO); −8 dB, 600 ohm unbalanced
Audio Track:	1 track (Normal-Mono)
Image Sensor:	1/3-inch CCD Image Sensor
Lens:	8:1 Power Zoom Lens with Digital AI Auto Focus Focal Length 6–48 mm F1.4 Auto Iris Filter Diameter 37 mm
Viewfinder:	2/3-inch Electronic Viewfinder
Standard Illumination:	1,400 lux
Minimum Required Illumination:	3 lux

Video Horizontal Resolution Colour:	VHS; More than 230 lines
Signal-to Noise Ratio:	Video; More than 40 dB Audio; More than 41 dB (A-WTD)
Audio Frequency Response:	Normal; 80–8,000 Hz (SP)
Operating Temperature:	0°C–40°C
Operating Humidity:	20%–80%
Weight:	Approx. 700 g (without Battery Pack)
Dimensions:	Approx. 100 (W)×112 (H)×194 (D) mm

VW-AS1B Information for your safety

Power Source:	AC 100–240 V, 50–60 Hz (Automatic voltage adjustment)
Power Consumption:	25 W
DC Output:	DC 6 V 11.8 W (Movie Camera) DC 6 V 1.3 A (Battery Pack charging)
Weight:	Approx. 0.39 kg
Dimensions:	70 (W)×58 (H)×178 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

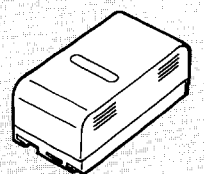
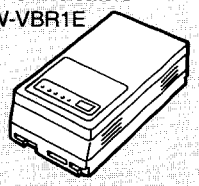
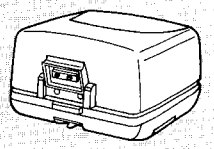
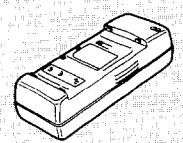
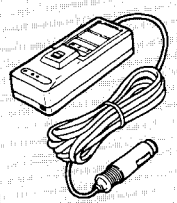
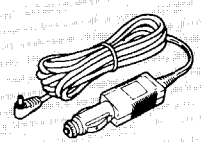
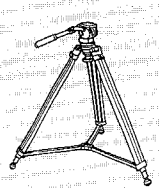
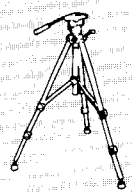
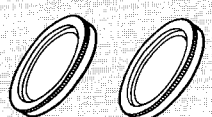
"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER CR2032 MANUFACTURED BY PANASONIC).

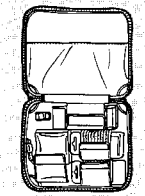
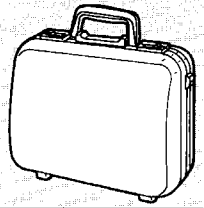
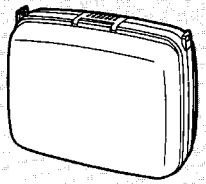
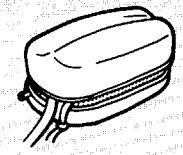
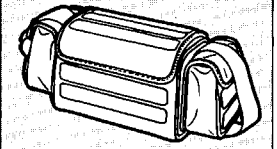
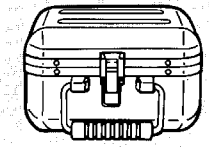
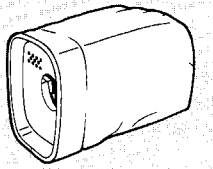
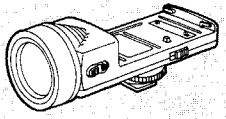
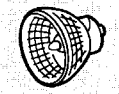
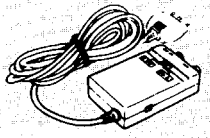
IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.

REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.

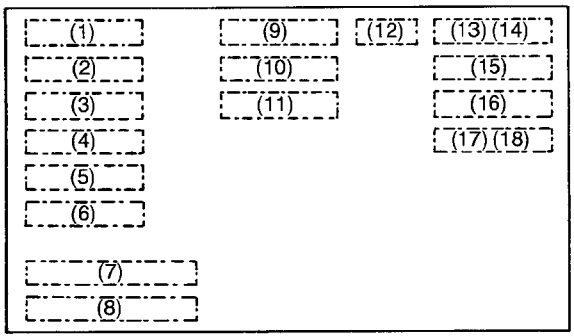
DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION."

Optional Accessories

Battery Pack VW-VBS2E 	Battery Pack with Remaining Battery Power Indicators VW-VBR1E 	Battery Pack with Remaining Battery Power Indicators VW-VBR2E 	Battery Pack Holder VW-VH1E 	Battery Charger VW-BCS1B 
Car Battery Charger VW-KBCS1E 	Car Battery Cord VW-ACC11E 	Deluxe Tripod VZ-CT75E 	Standard Tripod VZ-CT55E 	Table Tripod VZ-CTT1E
Tele Conversion Lens VW-LT3714E 	Wide Conversion Lens VW-LW3707E 	Filter Kit VW-LF37E 	Special Effect Filter Kit (A) VW-LFA37E 	Special Effect Filter Kit (B) VW-LFB37E

Travel Kit VW-TKS1B 	System Case VW-SHCS5E 	Carrying Bag VW-CBS5E 	Soft Cover VW-SCS5E 	Soft Bag VW-SBS5E 
Hard Case VW-HCS5E 	Rain Cover VW-RCS1E 	Video DC Light VZ-LDS15E 	Replacement Bulb for DC Light VZ-LL15E 	RF Adaptor VW-RF7E 

Quick Reference of the Indications in the Viewfinder



(1) Remaining Tape Time Indication (P.28)
- It shows that the recording time left is 30 minutes.
- The time is indicated in minutes. When there are less than 2 minutes left, the Remaining Tape Time Indication will flash.
- While the Movie Camera calculates the remaining time, the "R" indication will flash.

Note:
When putting in a new tape, if the Tape Length Indication does not match the cassette tape being used, the remaining time indicated will not be correct.

(2) Tape Length Indication (P.28)
- The Tape Length Indication shows the total length of the cassette tape being used.
- The tape length can be selected by repeatedly pressing the Remaining Tape Time Button.
  Depending on the cassette tape recording speed (SP/LP) selected, the indication will change as follows:

SP	LP
T30 30 minutes of tape	T60 60 minutes of tape
T45 45 minutes of tape	T90 90 minutes of tape

- The initial setting for the tape length is "T30".

(3) Digital Title Colour Indication (P.50)
- The colour of the title to be recorded is indicated in abbreviated form.
- The desired colour can be selected by repeatedly pressing the Title Colour Select Button.
  For example: "WHT" means white, "YEL" means yellow.
- The initial mode is "WHT".

(4) Digital Title Mode Indication (P.51)
- The title mode to be used is indicated.
- The desired title mode can be selected by pressing the Title Mode Select Button.
  For example:
  "WIPE ↑"
  "SCROL"
- No indication means that the normal title mode is selected.

(5) Image Stabilizer Indication (P.31, 38)
"☺"
- Turn the image stabilizer function ON/OFF by pressing the Image Stabilizer Button. The indication will be displayed when it is turned on.
- The initial setting for the image stabilizer is "ON".

(6) Digital Zoom Indication (P.44)
"D.ZOOM"
- Turn the digital zoom function ON/OFF by pressing the Digital Zoom Button. "D.ZOOM" will be displayed when it is turned on.
  ("D" means Digital.)
- The initial setting for the digital zoom function is "ON".

(7) Time Indication (P.21)
"15:38"
- The current time (hour and minute) is displayed.
  You must initially set the time.
- The time shown is in the 24-hour clock system.
- It is possible to display only the date, or the time and date together.

(8) Date Indication (p.21)
"20.10.1991"
- The year, month and day are displayed. You must initially set the date.

(9) Remaining Battery Power/Index Indication (P.30, 82)

"E—F"

- The "▬" indications begin to disappear from right to left as the power of the Battery Pack is being used up.
- When switching the Movie Camera on with the Battery Pack attached, the entire indication. "E—F", will initially be displayed for approx. one minute. The actual battery power left will then be displayed.

"INDEX"

- This indication flashes when a recording is started and it indicates that an index signal is being recorded.

(10) Tape Counter/Elapsed Tape Time Indication (P.29)

"0:23.45"

- The elapsed tape time, in either shooting or playback mode, is indicated in hours, minutes and seconds.
- By pressing the Reset Button, it is possible to reset the tape counter to "0:00.00".
- When a cassette tape is ejected, the tape counter is automatically reset to "0:00.00".

"M 0:23.45"

When you desire to playback certain scene at a later time, press the On-Screen/Memory Button at the beginning of the scene. When the Fast Forward/Cue Button or the Rewind/Review Button is later pressed, it is possible to easily locate these scenes. ("M" means Memory.)

(11) Warning/Alarm Indications (P.82)

The following indications are displayed to inform of you of various conditions of the Movie Camera.

"DEW", "⊗", "⚠", "▣", "BACKUP" and "END".

(12) Backlight Mode Indication (P.46)

" "→"◉"→"◉"→"○"

- Each time you press the Backlight Button, the indication will change as shown above.
- You can select the degree of backlight compensation according to the backlight conditions.
- The initial mode for the backlight compensation is "No indication".

(13) Tape Running Indications

Depending on the current operation being performed by the Movie Camera, the following indications will appear:

"▷" During Playback (P.62)
Camera Search (in forward direction)
"❚❚" During Still Playback (P.64)
"◁◁" Rewind/Review mode (P.64)
Camera Search (in reverse direction)
"▷▷" Fast Forward/Cue mode (P.64)

(14) Shooting Mode Indications

"REC" During Shooting (P.6, 34)
"PAUSE" During Shooting Pause (P.35)
"SNAP" During Snapshot Shooting (P.40)
"CHK" During Camera Search (P.35)

(15) Recording Speed Indications (P.15)

"SP" Standard Play speed mode
"LP" Long Play speed mode

- The mode can be changed by pressing the Speed Select Button.
- The initial recording speed mode is "SP".

(16) Manual White Balance Indications (P.54, 55)

"WHITE" Indication flashes slowly .....
The Manual White Balance is not adjusted.
"WHITE" Indication flashes rapidly .....
The Manual White Balance is being adjusted.
"W.SET" Indication is lit .....
The Manual White Balance operation has been completed.

In the Automatic White Balance Adjustment mode (initial mode), there is no indication.

(17) Shutter Speed Indications (P.48)

The desired shutter speed can be selected by repeatedly pressing the Shutter Speed Select Button. The numbers shown in the Shutter Speed are in fractions of a second, e.g. 1/120=1/120th of a second.
1/120, 1/125, 1/500, 1/1000, 1/2000, 1/4000

- The initial mode is "No indication" (1/50).

(18) Manual Focus Indication (P.57, 58)

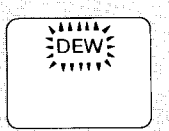
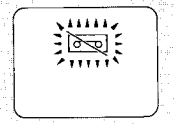
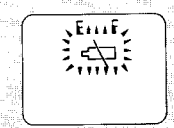
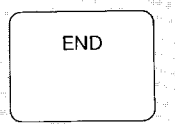
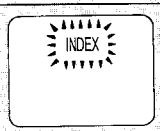
"MF" (MF means Manual Focus.)

Pressing the Manual Focus Button will turn the Automatic Focus mode ON/OFF. The "MF" Indication will light up in the Manual Focus mode.

- Initially, Manual Focus is OFF "No indication". (Automatic Focus mode).

Warning/Alarm Indications in the Viewfinder

The following indications are displayed in the Viewfinder to inform of you about the conditions of the Movie Camera.

Viewfinder	Conditions	Viewfinder	Conditions
	When condensation has formed inside the Movie Camera, the "DEW" Indication will flash and a few seconds later, the Movie Camera will turn itself off. —Press the Cassette Eject Button, remove the cassette and wait until the DEW Indication disappears.		There is no cassette inside, or the tab of the inserted cassette is broken out. The indication flashes to warn that shooting is not possible. —Insert a cassette with an intact tab. If the tab is broken, seal the hole with adhesive tape.
	Video Head Clogging. —Consult qualified service personnel.		When the Button Type Battery (for the title memory, auto date function, etc.) is not inserted or when it is exhausted, this indication will flash for 10 seconds after the Movie Camera has been turned on. —Insert a new Button Type Battery (CR2032).
	The "—" Indications begin to disappear one after another as the power of the Battery Pack weakens. When the last bar has disappeared, the Battery Indication " ⇦ " will flash. —Replace with a fully charged Battery Pack. When a newly charged Battery Pack is inserted, this indication initially always shows E– –F, regardless of the Battery Pack's capacity.		During shooting: The tape has reached its end. Replace the cassette with a new one. —Replace with a new cassette with an intact tab. If the tape is partly recorded, confirm the amount of available recording time using the Remaining Tape Time Indication.
			It appears briefly while an index signal is being recorded.